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Chair

Mr. Brent St. Denis

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Standing Committee on Industry, Natural Resources, Science and Technology

Monday, May 30, 2005

• (1530)

[English]

The Chair (Mr. Brent St. Denis (Algoma—Manitoulin—Kapusksing, Lib.)): *Bonjour, tout le monde.* Good afternoon, everyone. I'm pleased to call to order this Monday, May 30, meeting of the Standing Committee on Industry, Natural Resources, Science, and Technology.

We are pleased to have with us today witnesses representing Boîte à science, the Coalition for Canadian Astronomy, and the Quebec-New York Corridor Coalition. Thank you for being here to help us as we pursue our study of Canada's industrial strategy, its need for changes, possibly, and gaps and areas where improvement can be made. For the most part, you represent the science communities and those who are interested in just doing better as far as the Canadian industrial sector is concerned, and we appreciate very much that you are here.

We're going to go in the order you are presented on the agenda for the day. You're going to help us a lot by giving your presentations. We ask that you present for seven minutes, give or take. I'll be giving you a signal at around seven minutes, if you're not looking like you're winding up, so we'll all have time for questions after.

We thank Paul Crête for his helpful list for today.

With that, we'll start with Boîte à science. Madame Thériège, I believe you're going to speak for the group. Please, I invite you to start.

[Translation]

Ms. Manon Thériège (Director General, Boîte à science): Thank you, Mr. Chairman.

Good morning, members of the committee. My name is Manon Thériège and I am the Director General of the organization, Boîte à science. Thank you for welcoming us today, because I have an important message to convey to you. We want to talk to you about the importance of banking on childhood and innovation in order to better rise to the challenges stemming from the knowledge economy, globalization, and the demographic decline that Canada is currently experiencing.

I invited Mr. Jim Marchbank to accompany me today, he is an internationally renowned expert on science centres. In addition, he has been President and CEO of Science Nord, in Sudbury, for the last 23 years. Mr. Marchbank is also President of the Canadian Association of Science Centres. He therefore can answer any of your questions on the subject in detail.

You are probably wondering what exactly is the Boîte à science, therefore, to begin, I will give you a brief introduction to our organization. Ours is a non-profit organization that employs 13 staff members, a board of directors, a host of ambassadors and some 200 volunteers.

Our mission is to stir interest in science and technology among young people. Currently, we provide 96,000 hours worth of activities targeting young people each year. We have received several awards. We were the recipient of the NSERC award for PromoScience and we have been awarded by several chambers of commerce in our respective regions, for our contribution to economic development.

It is important to foster economic development when talking about childhood and innovation. This is why you invited us here today. Since 2001, we have been working to give our region a science and technology exploration centre.

You will note that Quebec City is the only city among Canada's 20 largest cities not to have a science centre, even though it is the seventh largest city in Canada. Therefore, at the start of our work, we met with more than 300 people. We held focus groups, visited some thirty science centres across the world, including 20 across Canada, and studied the issues. We launched measures to finance the project, and drew up a business plan, as well as an interpretation plan.

We have noted that there is a lot more at stake than we had anticipated; that is what I want to talk to you about today. We have also discovered a network of 1,500 science centres in the world and more than 180 studies that have measured and proven the contribution that science centres can make to our community.

There are three major things that science centres can bring to Canada: knowledge, assets, sense of being. They can be summarized as follows. You have heard about the first issue, that of knowledge. I am talking about the knowledge economy. Knowledge has become a major issue, to the extent that the quantity of knowledge will double every five years, and the OECD forecasts that the quantity of knowledge will double every 76 days as of 2010, at an exponential rate. Human beings are called upon to manage this. In fact, 90 per cent of all the world's scientists are still alive today. That means that man becomes the main source of creating wealth.

In addition, it means that all industrialized countries are calling into question the economic future of their countries. Indeed, the parameters are changing, new countries capable of creating wealth are emerging. These countries were not able to do so in the past, because it depends on humans. Therefore, knowledge is a major issue for our future.

The second major issue is that of gains. Gains become assets, and assets are created by humans. Demography is a human problem. The Conference Board of Canada predicts that within 20 years, Canada will face a shortage of almost a million workers. Allow me to provide you an example of this phenomenon. In Quebec, in 1996, 159 workers were required to support every 100 people. Currently, there is a balance. By 2011, 80 workers will be required to support every 100 people. Therefore, we need to double the capacity of wealth creation for these people.

How are we preparing these individuals to face these demographic changes? Repercussions can already be felt in our schools, and are reflected in the graduation rates. Obviously, a fall in enrolment in science and technology programs can be added on to that.

The third issue is the sense of being. Where does this capacity to innovate come from? The Conference Board of Canada, in its three most-recent annual reports, stated that Canada's innovation performance is weak and that this adversely affects productivity and its economic performance. Therefore, this sense of being, i.-e. innovation, is fuelled by human capabilities: the capacity to innovate, create, to be wrong and to start again.

• (1535)

Where does this entrepreneurial spirit come from? From a taste for risk-taking to the pride of job creation. What are the roots of the desire to serve one's community? Where does the ability to adapt to change, even to wish for it and seek it out, come from? From whence springs the curiosity and thirst for life-long learning? The roots lie in childhood, in the education one receives, in adolescence and in the family. After having grown up, if you are like me, you probably try and change from time to time, but it is more difficult to change and adapt once you become an adult. It is during childhood that we are able to do so. This is where we must first intervene.

Had we already started, we would have made a little more progress in the area of innovation. We must not believe it will be any different for future generations, considering mistakes will be higher for them: there will be fewer people to rise to the challenge. I remind you that the active force of the working population is between 24 and 44 years old and this is the group that should be the most innovative. The active force of 2025 is currently between 5 and 24. We must prepare them, give them the tools to face the challenges. How? We need many resources and strategies and Canada must be willing to make this a priority.

Science centres are a proven approach to achieve this. Several studies have shown that science centres ensure that people participate in life-long learning activities, promote a change in attitude to science and technology, a greater interest in career choices in these sectors, bring together scientists and the public and promote our economic development. We have evidence of this, and we have a network of sound science centres across Canada. However, it needs to be strengthened, because its mission is much broader than its current available means. Researchers have told us that informal learning, as provided by the science centres, is the main source of knowledge of half the population. To be in the running economically, we therefore must contribute to supporting the development of a strong strategy for science centres.

However, there is no such Canadian strategy. When we wanted to develop financing for the Quebec City science centre, we discovered there were no programs in Canada to assist us. Every region and city has established its own approach to federal government financing, and it has to be redone each year, a little bit at a time. All of this loss of energy limits the full realization of this mission to build science centres, even though they have a significant impact on our community. It is critical that we support them. This finding surprised us.

As well as wanting to develop a science centre for Quebec City, for which we need the support of the federal government, we wish to remind you at the same time of the importance of maintaining a Pan-Canadian strategy for the entire network of science centres, given the scope of the issues we identified, because we cannot do without their essential spin-offs; the issues are too important and we have already waited too long.

Therefore, I urge you to support any efforts that allow for future generations and the families currently raising them to be prepared, so that they will be in a position to meet the challenges of the knowledge-based economy and the challenges of the family. Families will be the ones to rise to the challenge of the labour shortages and will support the entire community.

I have here the business plan for the Quebec City project. Unfortunately, it has not yet been translated, but those who are interested could consult it in detail here. There is also a supporting document which, given a slight cyberspace delay, has not yet been given to the clerk, Ms. Thibault, but she will provide you with an update of this document.

• (1540)

The Chair: Thank you, Ms. Th  berge.

We will now turn to

[*English*]

Michael Jolliffe, of the Coalition for Canadian Astronomy.

I would like to point out that between Jim Marchbank and Michael Jolliffe, we have some very good connections, direct and indirect, in northern Ontario.

We invite you, Mr. Jolliffe, to continue.

Mr. Michael Jolliffe (Vice-President, Government Relations and Communications, AMEC; and (Co-Chair (Industry), Coalition for Canadian Astronomy): Gilles is going to start our presentation.

Professor Gilles Joncas (Laval University and Director of Research, Centre Observatoire du mont M  gantic, Coalition for Canadian Astronomy): Good afternoon, Mr. Chair and honourable members.

Distingu  s membres, bonjour.

It is a pleasure to be here this afternoon before the industry committee to speak on behalf of the Coalition for Canadian Astronomy.

[Translation]

My name is Gilles Joncas. I am a Professor at Laval University and I am the Co-author of the Long-Range Plan for Astronomy.

[English]

Joining me are Michael Jolliffe and Gretchen Harris, both co-chairs of the coalition. Michael represents the industry sector and Gretchen represents the Canadian Astronomical Society. We also have René Racine with us, who is executive director of the Association of Canadian Universities for Research in Astronomy.

We are here to talk to you about long-term planning for Canadian astronomy, which we feel offers lessons for the committee as it studies Canada's industrial policy.

[Translation]

It is understandable if you do not make an automatic connection between scientific pursuits, in particular astronomy, and industrial policy. However, if you ask yourself a few key questions about the purpose of an industrial policy, the linkages become clear.

[English]

Should an industrial policy foster greater knowledge and innovation in the workforce? Should it encourage research and development? Should it build international expertise in a defined field? Should it lead to Canadian industry developing niche markets for lucrative international contracts? Based on the experience of Canadian astronomy, we can firmly attest that scientific pursuits can deliver on all these fronts.

[Translation]

Following the tabling of the Long Range Plan for Astronomy, a coalition for Canadian astronomy was formed bringing together representatives from the astronomical community, academia and industry. This is unprecedented in the Canadian science community.

[English]

You could say the long-range plan is astronomy's industrial strategy for doing science. For the long-range plan to succeed, all stakeholders were needed to work towards its goals. On the academic side, the Association of Canadian Universities for Research in Astronomy was formed at the very senior levels of administration, bringing together 21 Canadian universities with astronomy programs to ensure they would speak with one unified voice.

We sought a partnership with industry to harness the technological expertise needed to bring project concepts to reality.

[Translation]

Naturally, without the support of the astronomical community, there would be no Long Range Plan. This is why we had linked the debate and discussion within the community in order to identify the priorities we would need in order to do excellent research.

[English]

To succeed in astronomy, the community had to focus its efforts on specific projects and the support structures necessary to sustain them rather than try to pursue every opportunity that arose, and there were many.

● (1545)

[Translation]

We are now at the mid-way point for the Long Range Plan, and the successes for each of our Coalition partners are clear.

[English]

First and foremost, Canadian astronomers have achieved scientific excellence. Canada is now ranked first in the world in astronomy despite the ongoing funding challenges we face in relation to our main competitors.

[Translation]

Second, enrolment in astronomy at Canadian universities is booming. The number of graduate students pursuing astronomy has doubled since the launch of the Long Range Plan. The number of Canada research chairs in astronomy has grown from 1 to 23. New astronomy departments have been created at several universities.

[English]

These developments will help ensure Canada remains at the forefront of this field, with our next generation of astronomers.

I will now pass it to our industry co-chair, Michael Jolliffe, to discuss the benefits for industry.

Mr. Michael Jolliffe: Thank you, Gilles.

Canadian industry has reaped huge benefits from participation in astronomy. KPMG estimates the direct economic return to Canada from its participation in past and future astronomy projects is at least two to one and the indirect return as high as eight to one. Jobs have been created for Canadians through the design, construction, and operation of astronomical facilities and instruments. This experience has in turn generated new knowledge and technological developments that produce spinoffs and market advantage for Canadian companies. For instance, since the mid-1970s my firm, AMEC, has been able to take a \$150,000 study into over \$300 million of business in astronomy in spinoffs for Canada.

Canada's participation in the long-range plan is delivering similar rewards for Canadian companies today. AMEC is about to secure a \$100-million contract to build the enclosure for the thirty-metre telescope, and Canada has also been invited to create two first light instruments. Companies that have never been previously involved are being attracted to work on astronomical projects. These small and medium-sized companies from across the country have become engaged at the best time—the upfront design and research phase—to leverage the longer-term industrial benefits.

You must also consider the spinoffs generated by this kind of work. The knowledge gained in working on these projects leads to new business opportunities in sectors far removed from astronomy. For example, at AMEC we were able to take our experience in building enclosures and telescopes into becoming a world leader in, of all things, amusement park rides.

Speaking from an industry viewpoint, I can attest that the relationship in astronomy is truly unique. With AMEC's global operations of 44,000 people, I know of no other sector where the science community, universities, industry, and government are as aligned in partnership to ensure the success of a single plan. Our relationship is not only advancing Canadian science, but it is doing so in a way that is delivering concrete benefits to our universities and our economy in all parts of Canada. Investments in astronomy are encouraging research and development, helping build a skilled workforce, and projecting an image to the world that Canada is serious about the pursuit of scientific leadership. It is because of these successes that we feel our experience can serve as a model for a science-based industrial strategy.

I'd like to take one last minute to address our ongoing funding challenges.

We're very thankful to the federal government for its initial investment in the long-range plan. That funding has helped get us to where we are today, with all the successes already outlined.

Even though we did not receive any new funding in the 2005 budget, we were able to secure the funding needed to maintain our participation in the thirty-metre telescope. But since we did not receive multi-year funding, we will be back in the fall to lobby all of you again. Quite simply, we have a plan to achieve scientific excellence, but we lack the funding framework needed to implement it.

Without Canada's investment in these projects, Canadian companies cannot access or compete for these opportunities. We cannot overstate the damage it would cause to Canada's international scientific and economic reputation if we were forced to withdraw from signed international agreements as we scramble to find resources to continue our participation.

These are more than scientific pursuits. They are investments in technology and people, ones that leverage Canadian companies into new and exciting fields and bring work back to Canada. If science is to form part of Canada's industrial policy—and we strongly feel it should—a mechanism must be created for funding it properly.

[*Translation*]

Prof. Gilles Joncas: In conclusion, we wish to present the committee with four recommendations. The first is the pursuit of excellence. If carried out in a coherent and co-ordinated way, it can be an engine for economic growth and industrial development.

[*English*]

Second, Canada's approach to science will help define its international investment brand.

Third, developing a federal government approach to the funding of big science would be an excellent way to encourage further research and development in this country.

[*Translation*]

Finally, once science works with the universities and industry, there are clearly economic spin-offs. Canadian taxpayers have been given a significant return for every dollar invested in astronomy until now, and this is through a more and more highly-qualified workforce and an industry that is more and more sophisticated. Canadian astronomy can serve as a model for science-based industrial strategy.

• (1550)

[*English*]

The long-range plan has laid the foundation for long-term success in this field, with ongoing benefits for Canadian universities and industry.

We thank the committee for giving us the opportunity to share our experiences and hope that you will be able to join us this evening at the Rideau Club for a reception from 6 p.m. to 8 p.m.

The Chair: Thank you, Professor Joncas and Monsieur Jolliffe.

We'll move to the Quebec-New York Corridor Coalition, and Garry Douglas.

Of course, one of the important things we're studying is smart regulation, and I'm sure that cross-border issues will be among the things we'll discuss with Mr. Douglas.

So I invite you to proceed, Mr. Douglas.

Mr. Garry Douglas (President, Plattsburgh-North Country Chamber of Commerce; and President (New York), Quebec-New York Corridor Coalition): Thank you. I appreciate very much the opportunity to be here.

Greetings from Plattsburgh, New York—Montreal's U.S. suburb.

It always causes some amusement among my Canadian friends when I say that, but I say it because it makes a very clear point, that Plattsburgh has become Montreal's U.S. suburb. This is a symptom of cross-border integration and interaction on an historic scale, which clearly must be a part of the development of any industrial strategy for Canada with any chance of success. It also means that I'm here as one of Canada's very best friends, because what's good for you is good for us; what's good for Montreal and Canada is good for Plattsburgh.

So I speak not as an American visiting Canada, but as somebody who shares your economic outcomes very directly. I believe that's why I've been asked to be here, to relate the experiences of our work in the Quebec-New York Corridor Coalition to your efforts to construct an effective industrial strategy for Canada.

Ahead of time, I submitted with my formal written testimony a complete copy of the Quebec-New York Corridor Agreement, signed between our chamber and the chamber of commerce of Quebec back in 2001. It outlined a very ambitious program of work, all geared toward building what we saw then, and see even more now, as an emerging binational economic region, stretching at its core from Montreal to New York City, but with ripple effects farther north and farther south as well. That became a full private-public partnership in 2002, when the Quebec and New York State governments joined with the business community in this project. We've had some remarkable successes since then.

Without repeating the written comments and attachments I submitted to you, including the corridor agreement, let me use the few minutes I have to try to strike on what I think are the lessons of our work that are applicable to the work of this committee at this time, and what my recommendations or thoughts would be.

First of all, we need to recognize the historic realignment that's under way. Globally, the world is realigning on a massive scale, seen only a few times in human history on such a scale before. Nation-to-nation trade is gone. In fact, every time I see the Canada-U.S. relationship referred to in the old terms of trade, I grimace; we're not Bulgaria and Thailand shipping boxes back and forth to each other. Our economies are so intertwined that it's not about counting the boxes or quantifying the goods that pass over the border, but we really are a common economic phenomenon, and we need to have a whole new language to describe it. That hasn't evolved yet, so we tend to describe it in old-think ways.

We are not trading nation to nation now, but bloc to bloc. We have to determine whether or not we're going to be good at doing that. Europe is eating our lunch in spite of the setback that occurred yesterday with the vote; they're still miles ahead of us in terms of getting with this new dynamic of bringing down borders and tapping the power of multiple nations, and putting it together to compete effectively with our real competition, which isn't each other, but Asia. We need to get ready for that.

We need to do what NAFTA started. NAFTA actually reflected something that the business world had already decided was a good thing and was doing—let's get the government out of the way. The governments didn't really make North American integration happen; they just decided it was happening and was a good thing and decided to bring down some of the barriers or impediments to it.

With this bloc-to-bloc realignment, right now you have North America and you have Asia, which is increasingly dominated by China—and watch out, because India is coming on strong—and then you have Europe. North America will eventually move in fits and starts, according to our political will in the decades ahead, towards a western hemispheric bloc. It isn't going to happen quickly, and it may not even happen entirely in our lifetimes, but it will inevitably happen, because it has to happen in order for us to compete.

Within that, megaports are evolving like Montreal and Vancouver, which aren't Canadian ports anymore, but North American ports. So there will be fewer ports on a larger scale, serving bloc-to-bloc trade rather than nation-to-nation trade.

Our fundamental belief is this: where things move is where prosperity occurs. Therefore, you want to make things move. You want to be the place where logistically things move efficiently and fast and quickly and flexibly, because that is inherently where prosperity will occur, particularly in this global dynamic.

• (1555)

Within North America, this fundamental realignment internally has generated a number of corridors that initially were about transportation, new realignments of where the trucks and the trains and the planes are moving in this new internal market. But as history tells us, inevitably what begins as a dominant transportation route then evolves into a common economic region. There we have the emergence of new binational economic regions, half a dozen of which have emerged very strongly between Canada and the U.S. We believe the Quebec-New York corridor is one of the strongest because of what it connects and where it's located, and it therefore provides some lessons and examples.

So any industrial strategy needs to recognize that. It needs to embrace that. You may as well embrace it, because you're not going to change it. It's important to get with that program and fit a strategy that is in tune with that integration occurring both globally and internally within the continent.

Secondly, as I already alluded to, we need to understand who the competition is. It is China. It is Europe. Why does Europe have a trade surplus with China, and we don't? I think it's very clear why they do—they pool their talent together so they can more effectively compete. Our only hope in North America, in fact...and I key into the remarks I heard earlier here about labour and talent and creativity and where enough of that is going to come from. If we stay nation to nation in North America, we will fail. Our children, our grandchildren, will not compete against Asia, and they will not have the better quality of life that we want each succeeding generation to have. Together we have a chance, so we therefore need to embrace coming together to tap the full talent and creativity and productivity on a continental and eventually hemispheric basis. Otherwise, we are dooming ourselves to failure.

Third, in the medium term, we need to support initiatives such as the recently proclaimed Security and Prosperity Partnership of North America, those that will pick up the NAFTA mantle that was left lying in the dust and say, okay, let's dust this off and figure out some of the new things we need to do. There were some real commitments, finally, long overdue, to look at administrative ways to reduce some of the regulatory barriers, the little things that get in the way, that we don't need to reopen a treaty to fix, but maybe bilaterally, through common sense and dialogue, we can fix. That's important.

We need to foster, embrace, and encourage technology collaborations on a binational basis. That's been a key endeavour of the Quebec-New York coalition. We have facilitated, in nanotechnology-advanced materials and other sectors, new collaborations between Quebec and New York technology interests. We didn't even know of each other's existence until we brought them together. Somebody needs to facilitate and make that happen.

Also, with regard to the border, to acknowledge the progress that's been made, particularly post-9/11, with the 30-point smart border declaration, Canada has certainly stepped up to the plate in that agreement and has largely delivered the commitments. But we would suggest it's not enough. If 82% of your exports are to a single customer and your access to that customer is based on a few slender connections by bridge and road in a half-dozen places with very little control on your part over what's happening on the other side, I would ask the question whether Canada's commitment is really enough. Are the funds talked about that are being devoted to the border really sufficient? Are the staffing levels really sufficient to service this phenomenon? I would suggest they are not, particularly when we see that in the Quebec-New York equation they most certainly are not.

We need a port-by-port—I'm talking from the Canadian side now—zero-based master plan for all of the major border crossings that doesn't look at what's there today, but looks at what would be there today if you were building them from scratch. What should the facilities be, the staffing levels, the technologies applied, the customer services? What should these gateways be? It's critical to Canada's industrial success that they work and they work well. We would suggest that Lacolle, perhaps, be a first test case for such a plan, and that it be done—and this is critical—not by the ministries per se but in full, open dialogue and partnership with the stakeholder, the customer community that uses those gateways on both sides of the border.

Canada also needs to provide even more support than is already being done through organizations like the Board of Trade in Montreal, the Quebec federation of chambers, and others that are on the front lines of the business community to facilitate compliance with U.S. regulations at the border and participation in programs like FAST. You might not like them, the business community might be annoyed about them in Canada, but they exist. They're there, and they have to be made to work. And if technical assistance and support is needed to get more Canadian business with those programs, then that needs to receive a lot more emphasis than it has so far.

• (1600)

The Chair: Thank you, Mr. Douglas.

Those were three excellent witnesses, representing three unique sectors in our economy.

Just before I move to Michael, very quickly, I want to ask Brian Masse and Andy Savoy a question. In your areas—you both have border ridings—do you have cross-border organizations of any kind, say at Windsor-Detroit, and in your case with the state of Maine?

Maybe Brian first.

Mr. Brian Masse (Windsor West, NDP): We don't. We have interested-party groups but we have no overall coordinating body, no

public border authority or commission. Other areas in Ontario do; we don't. We have private operators and community interest groups that are dealing with the border.

The Chair: Andy, how about down your way?

Mr. Andy Savoy (Tobique—Mactaquac, Lib.): I brought together members of Congress from Maine and people from the various industry sectors, agriculture, forestry, transportation, and retail. We've had some cross-border sessions, but there's no organization per se; it's been more of an informal gathering to talk about needs and issues as they arose. We've worked on both sides of the border with the various departments, especially those related to the border, the CBSA in Canada and the one on the U.S. side as well.

The Chair: That's very interesting.

Again, thanks to Paul Crête for this package of witnesses today.

Brian.

Mr. Brian Masse: This is just to clarify. There is a binational committee that's working with the province, the federal government, the Michigan state government, and their federal government on a long-term study. That's the only government-to-government....

The Chair: Thank you, Brian.

Michael.

Mr. Michael Chong (Wellington—Halton Hills, CPC): Thank you, Mr. Chair.

My question is for the Coalition for Canadian Astronomy. It's slightly tangential to what we're discussing, but I think it's relevant nonetheless.

I live in southwestern Ontario, in the Wellington County area. I think Ms. Harris probably lives in the Waterloo area. Over the last 15 years or so, I've noticed a huge increase in light pollution in the night sky. I know this is of some concern to astronomers, though I'm not sure if it's as much of a concern to professional astronomers as it is to amateur astronomers. Then we have these Kyoto targets we're trying to meet, and this is wasted light energy. It's also, I expect, detrimental to your study.

I'm just wondering if you could tell this committee what is being done about it.

Ms. Gretchen Harris (Co-Chair, Canadian Astronomical Society and Associate Professor, University of Waterloo, Coalition for Canadian Astronomy): You're quite right, light pollution is a serious effect all around the world. In southwestern Ontario it's very difficult to do astronomy in any professional way. There are a few small facilities that can still function.

Michael Jolliffe's riding, Richmond Hill, has been very proactive in containing light pollution. They feel it's good to keep the astronomy community there because we have a major observatory there, and they recognize it's economically beneficial. As a result, the tendency or trend now, for a variety of reasons, light pollution being one of them, is to place major facilities in locations where light pollution is not a major factor and then to continue to work with the communities around those locations to establish good relationships and control the light pollution.

You may not be aware of it, but the same problem occurs in radio wavelengths; it's another issue we're dealing with extensively. We don't believe we can beat back the whole world, but we're trying to save little centres.

• (1605)

[*Translation*]

Prof. Gilles Joncas: I will continue to speak about what is happening in Quebec.

The Mont-Mégantic observatory, in the Sherbrooke region, is an instrument that is often used for professional research by graduate students and researchers from Quebec.

I can tell you that we are in the process of setting up a project, in collaboration with Hydro-Quebec, under its energy-saving program, in order to provide, in an area close to the observatory, special lights which will send a minimum of light towards the sky, which will minimize the negative effects of light pollution on astronomical observations near the observatory.

[*English*]

The Chair: Before we go to Brad, I'll point out that Manitoulin Island is promoting itself as a night sky sanctuary, and we have lots of room for observatories on Manitoulin Island.

A voice: Are there bright stars up there?

The Chair: It's a beautiful sky. It's in my riding, by the way.

Brad.

Mr. Bradley Trost (Saskatoon—Humboldt, CPC): Well, he's allowed to make a sales pitch: Saskatchewan, beautiful, wonderful. It has the University of Saskatchewan not too far away. The synchrotron, Canada's light source, may not be quite what you want, but we can work with it.

In all seriousness, I think I'll turn my questions more toward Mr. Douglas. We're dividing up some of the workload here on this side.

One of the things, looking through your resumé, is that you used to be an executive assistant—I forget what the term was—to, I believe, New York Republican Congressman Gerald Solomon for 14 years. So I'm hoping or assuming you somewhat have knowledge about this. I'd like to get a bit of a grasp of how you feel and what your reading is of the awareness of Canada-U.S. issues in the United States—and I mean at different levels, because looking through your biography here, you've worked at different levels, from the congressional level toward the state level and municipal level, because all three levels of political government tend to have impact, and so on.

So I'd like, first, the general awareness, and then afterwards, as you answer, we'll go through more specifics. I realize that for Governor Pawlenty of Minnesota it's a little bit of a different issue than it is for Governor Perry of Texas, but I'd like an overall basic assessment of what you consider are the key points as far as American political awareness is concerned.

Mr. Garry Douglas: It's virtually zero. It's a very small onion, if you will, in layers.

Whether you're talking about the public, media, or elected officials, in border communities like Plattsburgh there is extremely high awareness. Most of us actually are intermarried, and our communities are fully integrated. My wife is from Montreal. I have a four-year-old binational. There's a very high awareness. In our congressional representatives, border state senators, state legislators, and so on, from those border areas there is very high awareness. At the next level down, if you go to the next layer of congressional districts, one district away from the border, I would say the awareness drops off by at least 50%. If you go to the next layer of districts beyond that, it goes to virtually zero. If you calculate that to the 435 members of Congress, that means there sure aren't a heck of a lot who have a very high awareness.

So it's highly problematic, particularly for those of us and our members of Congress and senators from areas along the U.S.-Canadian border to be effective in Washington, because the level of awareness is extremely low.

Mr. Bradley Trost: I guess attention isn't always the best thing. Iraq has had more than its share of attention from the United States, and it hasn't always been the most positive. Or maybe it has been—

Mr. Garry Douglas: Except that when things happen that are apt to create some negative perception or reaction amongst U.S. political interests and just the U.S. public in general, if there hasn't been a good grounding of awareness of all the positive things and the partnership between us there to counter that, then it becomes really skewed, and that is a very serious problem.

Mr. Bradley Trost: It goes both ways.

Secondly, based on your experience, what would you recommend particularly doing to raise awareness? I would say that in Canada we're much more aware of the United States and its political.... The BSE crisis has been dominant for us. My understanding is that it barely hits the radar down there unless R-CALF is lobbying or unless the processors have had a plant shutdown in a district or something like that.

So in your specific experience, what would you recommend the Canadian government do? What should we do as individual members of Parliament? You're an American; how do I best sell myself to the people who are in, say, Pennsylvania districts? Governor Murkowski has been here, but again, to that next layer further down....

• (1610)

Mr. Garry Douglas: Certainly there has been a commitment in the past year to increase Canada's profile. There are several new consulates opening. There are several other offices being opened. I believe some more resources are being provided to Canadian consulates in the U.S. to do more of that kind of day-to-day educational effort and relationship building, and that's good. However, consulates don't do it. There's only a limited degree to which they really connect with average people.

The best work, frankly, that's being done between the U.S. and Canada—and certainly this has been the case over the last 15 years—hasn't been at the federal level. It has been at a state and provincial level or the community-to-community level, such as is going on between Quebec and New York. But there are other examples like that, where states and provinces have come together and are doing actually some of the most creative work. They're pushing ahead of NAFTA and trying, to the extent that their jurisdictions allow them, to do all sorts of new kinds of partnerships, often with very little, if any, support from either federal government.

I think more attention to that from Ottawa, to tap the power of those organizations, those initiatives that are happening on the ground as a wedge to build more awareness at a grassroots level, would be the most effective thing to do—support and be a part of, contribute to in every way possible, taking advantage of those laboratories that are going on in these border and corridor areas and make them work. They'll become the ambassadors.

I'll give you an example. We lobby in Washington every 60 days. When I go to Washington every 60 days to meet with Senator Clinton and Senator Schumer and some of our House members and others, I bring representatives of the Quebec government with me. I had the Quebec delegate general in New York with me in Washington a couple of weeks ago to join in those meetings. The Canadian consul general in Buffalo also came with me. I think that kind of thing could occur across the border with some of these grassroots efforts to provide that access on the other side of the border that Canadians on their own really can't have. You need Americans to be with you, to go with you to those congressmen and to those senators and help in that way, to have it seen that these people are our friends, they're here with us, and we have a common message.

So I think anything that encourages that could, in the end, be the most effective route.

Mr. Bradley Trost: Do I have more time?

The Chair: I'll let you wrap up, if you want, or we can come back to you.

Mr. Bradley Trost: Come back. I have bigger questions that will take some time.

The Chair: Okay.

Mr. Crête.

[*Translation*]

Mr. Paul Crête (Montmagny—L'Islet—Kamouraska—Rivière-du-Loup, BQ): Thank you, Mr. Chairman.

I would like to thank you for the quality of your testimony, because it is important that we have such a vision of industrial strategy, a vision that is alongside our short-term economic action. I think you have raised some interesting issues in that regard. I will ask three questions first of all, one of each group, and you may answer them in that order.

The first question is directed to Ms. Thériault and Mr. Marchbank, from the Boîte à science. You mentioned that there is no federal government program to promote the development of these centres. Could you tell us what type of program you would like to see?

Which department should be responsible for it, in your opinion? I would like to have a better idea of the framework that should be developed in order to allow for a response to such request, particularly when it comes from a region that is currently not being served. I would like to see how that could work.

My second question is for the people from the Canadian Coalition for Astronomy. The issue of multi-year funding is of great interest to me. I would like you to tell us what the consequences are of having to take steps to obtain funding every year, rather than having access to a 3- or 5-year program that would at least give you a general framework. I would like to hear your comments on that issue.

Mr. Douglas, your testimony went beyond what I expected. I find that even more interesting. I would like to hear your comments on the infrastructure developed by the American Government at the border, at Plattsburgh, as opposed to what we have not developed on our side. Does that not represent some kind of significant deficit in the area of communications on the Canadian side?

The witnesses may answer my questions in that order.

• (1615)

[*English*]

The Chair: We'll start with Jim.

Mr. Marchbank, do you want to speak?

Mr. Jim Marchbank (Chief Executive Officer, Science North - Sudbury, Boîte à science): Yes, perhaps I can respond vis-à-vis science centres. There are federal programs that science centres are able to access in an ad hoc way. In my own case, for example, we're able to get support from FedNor. We've had support from HRDC. We've also had support through Cultural Spaces from Heritage Canada, but it's on an ad hoc basis. It's based on each of us individually trying to fit the criteria of those programs.

There is no overall federal program to support science centres in this country. There needs to be a program that helps science centres, which are usually volunteer-driven in communities, get started, and get a start-up with a centre, which is what Manon is working to do in Quebec City. There also needs to be a program of granting that leverages other support to assist with the programs of science centres.

This is perhaps the only large industrialized country—certainly federal country—in the world that doesn't have such a program. The Australians have a program called Questacon, through the National Science and Technology Centre, that involves all six states of Australia. The European Union has a very extensive program working with a European association of science centres. The United States, through the National Science Foundation, provides more than \$60 million U.S. a year for informal science learning projects within the United States, much of which goes into science centres. It's there to focus on informal science learning.

That's what we provide: informal science learning. We're not in competition with or a substitute for the formal education system; we are a complement for it. As Manon said in her presentation, we're about getting kids particularly, but kids and families, turned on to science. We serve other functions for different demographics, and we also serve tourists. But in the context of an industrial strategy, we as science centres see that the federal government has poured billions into research and universities, and wisely so, but very little of those funds are in fact aimed at increasing the number of people who choose to study science and pursue science as a career.

You decide a long time before you get to university what you're going to study and what your career is going to be in. If we in Canada want to continue to generate wealth, continue to have a vibrant and innovative economy, and continue to have a very high quality of life, then we have to get more people into the science and technology careers and studies. We think that, as science centres, we can play a big role in that.

To answer the question on the targeting, we believe such a program should be run through Industry Canada, but we're open to whichever branch of the federal government would like to run it. We simply think there needs to be one. There isn't one in Canada at the moment.

The Chair: That was well put, as usual.

On Paul's second question, either Professor Joncas or Monsieur Jolliffe.

Prof. Gilles Joncas: Mr. Jolliffe will start the answer and I'll continue.

Mr. Michael Jolliffe: Canadian astronomy is now a victim of its own success, being ranked first in the world. Obviously, long-term financing would be the most appropriate way to deal with these projects. We're talking about large international projects with countries, on the scale of \$1 billion each. The only way to do these properly and to ensure that Canada has a leadership role in them is through long-term funding. Unfortunately, the funding system that exists today is like the game Twister, where you have to reach over and get this, and that, and the other thing. None of them really deals with the issues that are in the long-range plan or will assist in large international projects.

The other issue is that they are not in cycle with all of our international partners. They all have different requirements for application, review, and the time scale in which they're funded. None of those really address any of the issues that allow Canada to be involved in these astronomical facilities.

Our recommendation for the last five years, as we've gone to the government for funding, is to put it on a three-year or five-year funding cycle that is much more predictable and allows us to deal with our international partners. From a private sector point of view, it allows companies to ensure that their contracts aren't just going to disappear because Canadian funding has been pulled.

• (1620)

The Chair: Thank you.

Mr. Crête.

[*Translation*]

Mr. Paul Crête: Are there other countries that currently have multi-year programs?

Professor René Racine (Emeritus Professor, University of Montreal, Executive Director, Association of Canadian Universities for Research in Astronomy, Coalition for Canadian Astronomy): At the end of the 1960s, Europe set up what was called the European Southern Observatory, the ESO. The infrastructure is in Chile. The ESO is a structure that is now funded on an ongoing basis by the European government. Eleven countries contribute to it. This ensures durability, stability in funding and in planning. And indeed, Europeans are very proud of their successes, because for two years, they have had the most powerful telescope or observatory in the world and they can boast about it. It is because they invested in the setting-up of these infrastructures that they were able to take the lead over other nations who were perhaps less coordinated.

In Canada, of course, there are efforts being made to join with other partners, with the Americans in particular, in several cases. Canada and the United States have an excellent industrial and scientific partnership in the area of astronomy. This allows for participation with these people in organizations subsidized by the National Science Foundation or by Australian organizations, or others. This allows us to work with them and to be able to follow them and even, in certain cases—as in the case of the 30-metre telescope that is currently one of the priorities—to be a leader on such large projects.

That is a very long answer to your question, Mr. Crête, but the answer is yes. Europe is a good example. Even though it has made less progress, Japan must also be mentioned. In fact, what we really have is a logistical, planning and efficiency problem.

[*English*]

The Chair: Thank you, Mr. Racine.

We'll go to Mr. Douglas. There was a question there for you.

Then, Ms. Thériège, we'll go back to you just for a moment. I think you want to add something to Mr. Marchbank's comments.

Mr. Douglas.

Mr. Garry Douglas: Champlain-Lacolle, depending on what you count, trucks or volume of goods or value of goods—you can rejig the list a little bit—is certainly one of the top six gateways between the U.S. and Canada. By one estimate, value of goods, it's actually number four. Having said that, it has unfortunately been, from the point of view of both federal governments through most of recent history, an orphan gateway. On the Canadian side I can explain that, given that 82% of trade is southbound. On the U.S. side, it's largely explained by what we talked about a short while ago: that in Washington, at least pre 9/11, the U.S.-Canadian border just wasn't on anybody's radar scope as an issue to spend any money on, in spite of NAFTA's really not reducing the demands at the border but actually increasing the demands to process things at the border.

We—our Quebec-New York coalition—launched a campaign in Washington in 1999 for entirely new border facilities at Champlain on the U.S. side. We will be breaking ground in late June on an entirely new, first of its kind, state-of-the-art border crossing campus at Champlain. There is \$100 million dollars U.S. about to be invested there, the single largest investment ever made by the U.S. government in any border facility anywhere, anytime. There will be approximately a tenfold increase in the scale of the actual facilities at Champlain. Any of you who have crossed the border at Champlain in the past know that everything that's standing there today is about to be demolished—every booth, every building, every scrap of blacktop—to be replaced by this entirely new campus. It's an exciting success story. It took a lot of lobbying and political wherewithal to generate the political will—pre-9/11, actually—to set this up. Post-9/11, of course, a whole lot more resources began to become available from Washington for reasons of security, but in fact they served our interest in trade facilitation as well.

We've found for the most part that as long as we're careful to do things sensitively and make sure common sense applies from time to time when things get a little off-track, most of the things being done on the U.S. border now, post-9/11, in the name of security are the same things we were asking for before 9/11 in the name of trade, but we couldn't get any political will to deliver them. We just have to watch and be very careful about how they're applied, but we are getting the resources and programs we always wanted.

With all of that about to take place at Champlain, I have to be very frank. I can't put it any better than to really ask the question—because I think it's more of a question than a statement on my part. The U.S. is spending \$100 million U.S. at Champlain on entirely new border facilities, and the Canadian federal government is doing what at Lacolle? I haven't been able yet—none of us have been able yet—to really get an answer to that. We've tripled staffing at Champlain; they are understaffed at Lacolle. There is \$100 million dollars in new facilities at Champlain; you can't even seem to get a clear answer on moving an export control shack at Lacolle in order to get with the new design.

If 82% of my business as a business were on the other side of that facility and that facility needed to work.... It just seems to us it ought to be receiving a whole lot more priority.

Windsor and the Peace Bridge are receiving a great deal of attention, and well they should. Nothing should be taken away from the other border crossings that now are getting their overdue attention in terms of their needs. But the Quebec border crossings haven't even had that degree of political attention.

•(1625)

The Chair: Thank you.

We'll have a very brief word from Madame Th  berge—you said you wanted to add something—and we'll come back to you, Paul. We'll have time.

Can we have just some brief additional words?

[*Translation*]

Ms. Manon Th  berge: I just wanted to add that the member countries of the OECD and UNESCO have agreed to fund informal education as much as possible, because that is how we learn the

most. The longer we wait to do so, the more the community loses. Everyone talks but everyone feels they are too poor in comparison with the others. We will never change anything if we do not take concrete steps to turn things around. It is not enough to do the least possible. We must do truly substantive work in order to be creators of wealth. It must be done to ensure the future of astronomy but we also need to have equipment now, so that people working in this sector can be competitive and so that they stay here. Otherwise, they will go elsewhere; there is a brain drain across Canada.

It is therefore essential that the action we take is not short term. We have to see beyond our noses. As Mr. Marchbank was saying, a succession of funding mechanisms that do not meet the needs and that do not allow opportunities to be taken advantage of had been poor choices for Canada for a long time. We must act, because we are losing ground by not taking the necessary decisions.

Thank you.

[*English*]

The Chair: Thank you.

We're going to go to Andy, then Brian, then John.

Andy, please.

[*Translation*]

Mr. Andy Savoy: Thank you very much.

Like Paul, I have three questions: one for each group.

Your science is truly a challenge. As an engineer, here in Ottawa, I understand challenges. I want to talk about strategic alliances. Do you have such alliances with architectural or engineering organizations, for example, or with construction associations in Canada or any other associations? I believe it is very important to consult with industry as well. Therefore, the issue for you is to have strategic alliances.

[*English*]

On Quebec and Lacolle, I spend a fair amount of time in Washington. I was recently down meeting the new ambassador, and I meet with the senators and members of Congress for Maine. One of the challenges we're facing is that it seems the U.S. is approaching the borders as a single entity—see the northern and southern borders as the same thing. Now, obviously there's very much a difference in the relationship between Canada and the U.S. and Mexico and the U.S. It's a very different border and there are very different issues.

How do you see addressing those challenges and making sure that in Washington they realize the challenge that we face—I shouldn't say the challenge, but the difference between the two systems needed, let's say, at the specific borders? Because I think that's a significant challenge.

For the Coalition for Canadian Astronomy, we've had a challenge in Canada of moving R and D to the front of the line in terms of industry. Traditionally, we've had a much slower take-up on R and D in industry than we've seen in other countries, specifically the United States. We've increased funding substantially over the last seven or eight years for government-sponsored R and D, for example the research chairs in NRC and other entities, other organizations, like TPC. If you were to look at the challenge of engaging industry in your initiatives, would you say you've succeeded, or partially succeeded? What are some of the success stories?

And just on a note, you mentioned you had been doing R and D across Canada, that you're proud of BreconRidge Manufacturing in Ontario. In all the firms you've talked about in terms of R and D and the work you've done across Canada—which is what you claim—I don't see any western Canadian firms or Atlantic Canadian firms. Are there any, and could you give me the specifics?

• (1630)

The Chair: We'll start in the same order.

Madame Th  berge.

[Translation]

Ms. Manon Th  berge: I will begin and Jim will finish.

As far as our links with industry are concerned, we are already working in the community with children, adults, families and youth-related issues. We are already working with 130 businesses.

The best kind of work to do with businesses and their employees is to promote their achievements, so that people have models. That generates pride, as well as a taste for undertaking projects and innovating. As a result, this is the kind of connection we prefer to have.

We are doing this on a very small scale, but the science centres have that possibility. And so the issue, the challenge of setting up a project, as we are doing now, is to make sure it is at the service of the community.

In this way, we have had 300 meetings with directors, leaders, scientists, entrepreneurs, research centres, in order that this be a showcase and a creation based on the wealth and talents we already have.

Our approach has been greatly inspired by our visits to science centres, including the one in Sudbury. This is why I want to allow Jim to complete my answer. Its establishment in the community has been an unusual success. Therefore, we have tried to develop that aspect, found in Sudbury, so that the science centre of Quebec City would have the same kind of networking strength.

[English]

Mr. Jim Marchbank: We've had extensive interaction with industry and with science, and at various levels. I take it part of your

question related to financial leverage and partnership, but some of it is also scientific and content leverage in partnership.

We, for example, two years ago in 2003 opened a sub-centre of our science centre, called Dynamic Earth, that deals with geology and with mining technology and with the science of the earth. That's not surprising for Sudbury. We worked extensively with the mining industry both to seek funding, which we received successfully, and also for its contents and for bringing technology and allowing, for example, kids to sit at a mining command centre and remotely control equipment underground. That's not most people's perception of what mining is, but that's the reality of what it is, and there are very few places in the world where the public and young people can get an understanding that this is in fact the reality.

That's an example, perhaps, of the kind of partnership we have on a day-to-day basis, particularly with the mining industry in our part of the world. We've done other things with the forestry industry.

We also have in Sudbury an astronomical centre of a kind known as the Sudbury Neutrino Observatory. The federal government has put huge dollars into the Sudbury Neutrino Observatory to put Canada at the forefront of this scientific research. The challenge one has is that if you walk down the street and ask somebody what a neutrino is, you're going to have a problem getting an answer, and people may wonder why their tax dollars are going into that kind of activity. We believe it's part of our mission and our responsibility to help make that linkage. We've worked very closely with the physicists of the Sudbury Neutrino Observatory. Not only have we created a multi-media theatre that explains, we hope, a bit of what neutrinos are and why we're studying them and why we should know, but in fact that theatre, since it was opened, has been updated to include the results of some of the ground-breaking research and observations that have been done through the Sudbury Neutrino Observatory.

There are two quite separate examples, I think, of the kind of leverage and the kind of partnership science centres can have, both to lever funds into the public understanding of science, and also to get people involved and help them understand.

Mr. Andy Savoy: You're hitting all the right buttons, by the way. I'm a geological engineer and Brent is a professional geologist— or geophysicist.

• (1635)

The Chair: Mr. Douglas.

Mr. Garry Douglas: How to separate the Canadian and Mexican borders in the minds of American political interests, or just Americans in general, is a daily challenge for all of us who try to deal with this issue.

We touched on this earlier, but to most Americans, in the absence of a positive perception, negative news becomes the perception. What do Americans hear about borders? All they ever hear about is illegal immigration at the Mexican border and, secondarily, about drugs coming from the south. They don't hear anything positive about borders; therefore, all borders are borders. That creates a huge mountain, politically and otherwise, to get over.

In terms of extending the original Canadian-U.S. relationship to encompass Mexico, NAFTA was of historic importance; it needed to be done for the long-term picture. In fact, what will solve this problem sometime, or decades out, is pulling Mexico up to our level. Until that happens, Canada has to keep the conversation bilateral every time that it can. I think there's some encouragement in the recent security and prosperity partnership commitments that were made by the Prime Minister and the two Presidents in setting some trilateral goals but putting them into bilateral conversations. Anytime it turns into a trilateral conversation, it's not in Canada's interests and, frankly, it's not in our interests in border regions of the U.S. either. So it's important to do that as much as possible.

Building political coalitions is important. With the grassroots ones like ours, which I've already referenced, Canada needs to support what's happening on the ground where it is happening and encourage such things to happen where they aren't happening, so that you have some leverage and presence on the other side of the border that can help you punch on the other side of those border crossings.

Just recently, a border caucus was formed in Parliament. I think that's very important. There's been a northern border caucus in the House of Representatives for about 10 years; it's been an effective way to help counterbalance, in our case, what had been and still is an extremely powerful caucus on the southern border of the U.S. The senators and congressmen from California to Texas join together and speak as one. It's very important—perhaps even on a more bilateral basis—for the northern border caucus and the new Canadian border caucus and the House of Commons to try to come together to speak as one, so there's something to define as separate the differences between the Mexican and Canadian borders in the American vocabulary. The problems are different, the challenges are different, the opportunities are different, but we need to collectively do a whole lot better job of telling that story.

I don't know if you get to enjoy Lou Dobbs on CNN every night, but every single night he is pounding the American public and American public opinion about borders, and our poorest borders, and where the security threat is.

By the way, we never go to Washington without continuing to hear the mythology—which you cannot destroy now—that some of the 9/11 terrorists came from Canada. We heard it again two weeks ago from a member of Congress. It just makes it all the harder to separate the Mexican and Canadian borders.

The Chair: Thank you.

We'll let the coalition wind up with Andy's questions.

Mr. Michael Jolliffe: Before that, I should say that the Sudbury Neutrino Observatory, the example Jim used, was engineered, designed, and project-managed by a great engineering firm called AMEC. So that was a good example, a good example.

Voices: Oh, oh!

Mr. Michael Jolliffe: There are two parts, I think, to your question. You asked how you leverage companies in.

The most successful way we've seen is the engagement in the partnership between academia, government, the research facilities, and industry, as opposed to keeping them separate where they're off

doing their own things. When we as a private firm have been engaged in this process on these facilities, it has created far more output in the spinoffs; it's been unbelievable. I can't think of anywhere else that I've seen that happen. When you look at some of the firms that we have talked about here that are now working on this, you can see that where that engagement occurs, it is much easier to get them in to see the opportunities in the future, thus minimizing their risk from continuing to participate in that development.

To answer your second part, on the distribution of where the economic benefit has been, what you're seeing in the presentation today is a result of the work on the long-range plan, which really started from 2000 forward. If you go to pre-2000, all of the work of AMEC that I talked about, even in the long-range plan, has been done from our facilities in Port Coquitlam, British Columbia. So in the 30 years before where we are today, over 80 corporations were subcontractors to our company, and all of that work I talked about went through western Canada. Of the 155 companies that have participated in telescope-related projects, well over half are in western Canada. I don't know if that helps give you a sense of the distribution.

So far, you can see that there are a lot of technology-related firms here in central Canada, in Ontario and Quebec, participating in the next wave of these facilities.

• (1640)

The Chair: Very good. Thank you. We'll try to come back. We want to get everybody on here.

Brian, then John, then Jerry.

Mr. Brian Masse: Thank you, Mr. Chair.

I represent Windsor, where we have 42% of the nation's traffic. It's the busiest in the world, actually, in terms of border-crossing activity and the port as well.

Mr. Savoy is quite correct: one of the emerging new problems is the connection of seeing the southern border and the northern border in the United States as the same thing. It's a growing problem.

In fact, your example is very frustrating, in terms of the 9/11 terrorists coming from Canada. I'll tell you, I find it particularly frustrating when I watch the President walking hand in hand with the Crown Prince of Saudi Arabia, while at the same time we're continually criticized for being the source of 9/11, which is absolutely unacceptable.

One thing I would like to look at specifically in your particular documents here that is really interesting—it's well thought out and it's multimodal, something that is not discussed a lot in many respects—is that you mention the use of rail and highway improvements together. Can you elaborate, in terms of your region, how they evaluate rail versus highway, or whether or not they're competing anymore and are seen as multimodal?

Mr. Garry Douglas: One of the first things we did when we began our collaboration several years ago was focus on transportation. We identified a number of areas and are now working in all of them, but the key bottom line was transportation. We believe, as I said in the beginning, that where things move is where prosperity occurs. If you don't get that right, the rest of it isn't going to happen. It's what's defining these new regions; it's what makes you a welcoming place for technology or anything else you're also trying to make happen—tourism, or whatever.

We created the Quebec-New York Transportation Council. It has quarterly meetings now that bring together both private and public transportation interests on a binational and regional basis to jointly identify priorities and strategies for transportation development.

What is remarkable is that when we first started doing this in 1998-99, even the New York State transportation department and the Quebec transportation ministry never talked to each other. It was as if their transportation systems somehow stopped at a line and they had no idea what happened beyond that. There certainly was no joint planning, no joint setting of priorities. Now they do it routinely. We're very proud that we have brought them together. Now, without even the need for our facilitation anymore, they are working together the way they always should have.

I don't know the degree to which that's the case across the border. It certainly needs to be, particularly on a provincial-state level.

But we also identified, again collaboratively on a binational basis involving the private and public sector, several initial priorities. One was the port project at Champlain. We're about to deliver that, at least on the one side of the border. We're now going to start turning our attention to the need for a follow-up on the other side of the border.

The second priority was rail. We recognized we had this great highway connection, befuddled only by the border crossing. We needed to focus on it to make the highway work. We also had a great deal more potential in our rail connection, which is owned by Canadian Pacific from Montreal to New York, than seemed the case from its utilization. Why wasn't it a more dominant rail connection than it was?

We looked at that question, and there were two key reasons. One is that you can't double-stack on the line, because there are two tunnels and three bridges that keep that from happening—just two short tunnels and three bridges. So we identified as our number two priority to fix that situation to allow double-stacking on that line. That would position it for the kind of rail transportation we need to have binationally in the future.

The other was the need for partnership. We had CN going one way and Canadian Pacific going the other way, and because for a hundred years they had been competing, God forbid they'd use one another's rail lines, even if it makes more sense for both to do that.

At our first Quebec-New York economic summit in 2002, we obtained a commitment from our governor, George Pataki, to a \$27-million package of New York State investment in the Canadian Pacific rail corridor from the border to New York. That work is about to commence. Within a matter of weeks, in fact, it is going to drill out those two tunnels and replace those three bridges.

We also would like to share at least a little bit of credit. We think the attention we helped focus on the potential of that rail line, and the fact that we had partners like CN and CP both directly taking part at very high levels in our collaborative meetings, hopefully played a role in the partnership they have now come together on. They've now agreed strategically they're going to share that line, and they're both going to use it.

It has already increased the traffic on that line tremendously, and once we clear those impediments over the next two years, we have set up that rail line to be a very important player, making for ourselves a place where things move by all modes, thereby making for ourselves a zone of prosperity.

• (1645)

Mr. Brian Masse: Well, I commend you for your efforts.

How important is it for business to have redundancy? I know that's being discussed more. I'm actually one of the co-chairs of the border caucus. We had our first meeting with our American counterparts, with Bart Stupak in particular. We're starting to talk about the issue of redundancy, the acceptance that there has to be extra capacity available to provide some greater security during heightened awareness. How important is that?

Mr. Garry Douglas: Again, if 82% of my customers were in a single location and 40% of what I was shipping to them was going through one single connection, would I be concerned about redundancy? I certainly would. If 9/11 taught us anything, it was how some wacko could knock out the very slender ties that link the U.S. and Canada in this huge phenomenon.

Wow, what a wake-up call! I know it scared the hell out of a lot of my Canadian friends in business on this side of the border. My goodness, look how vulnerable we are when a few bridges, tunnels, and other connection points are shut down for some reason, are taken out of service.

Redundancy has always been important in transportation. When we deal with economic development prospects in our region and they're transportation dependent, business people always want to see redundancy. If that highway closes or that rail service is out, how else will I move my things? It's increasingly important in a world where things have to move fast and reliably anyway, but then in the U.S.-Canadian picture it's even more critical for both of us. God forbid, if even one major bridge was out of service for some reason, it would be a catastrophe.

Mr. Brian Masse: Absolutely, and that's been raised with respect to our border. In fact, it's privately owned, and we can't even inspect it properly through our legislation right now. The government has finally made at least some effort to have some type of control over audits, financially and inspection-wise, which they currently don't have because a private American citizen owns the border crossing. They basically have jurisprudence over the site we have issues with.

I've lots more I could ask you, Mr. Douglas. Once again, I want to commend you for your efforts. I think it's important. It's a good model for success. It should be replicated.

To our other two guests, especially considering some of the comments that have been made, what about the issue over multi-year funding? How much is that hampering projects? It's one thing I've heard a lot.

We have a small science centre in my community, a very great addition. We took an old school and renovated it. We have kids in there, it's packed, and it's wonderful. We take advantage of HRDC and other programs, but often the attention is on reapplying for funding all the time as opposed to educating the kids.

How would your organizations or your issues be advanced by more multi-year funding as opposed to single-year applications—or less than single-year ones in some cases?

Mr. Jim Marchbank: In the case of the science centres, what we'd really like to see is a consistent federal program first; then make it multi-year. I'm not trying to be facetious, but we don't have a consistent federal program aimed at informal science learning. I don't want to focus just on science centres, because there are other organizations involved in informal science learning. We think there should be a program at the federal level.

To answer your question, yes, I think multi-year funding is very important for all the science centres. Manon tells me she has a budget of \$700,000 and about \$50,000 of it is guaranteed each year. How much of the resources are being put into going out and finding all of that? If there were a consistent federal program supporting science centres or supporting their programming on the delivery side each year for all science centres, I can assure you all of us would take that and lever it several-fold in order to put in the resources.

If it were consistent and we had, not absolute guarantees but at least some assurance it would continue on a multi-year basis, then we'd be able to focus on multi-year programming. While all of us get involved in one-year or two-year kinds of initiatives, they're not the most efficient way of doing things. What you end up with is resources being put into raising new resources in a way that, frankly, can deflect attention from the mission and from the real science programming delivery to kids and to families.

So yes, funding a program is very important, but consistency and having it multi-year would be a big addition.

• (1650)

The Chair: Brian, you're going to ask a final question to the coalition, eh?

Prof. Gilles Joncas: There are two parts to my answer.

The first one is that in astronomy, I'd say the easy problems have been solved. What are remaining are the complex questions, and you need a long-term commitment to be able to answer them. We're now asking ourselves questions that relate to the fabric of the universe—not easy questions to answer. So we need to be able to tackle such problems—what we call our world observatories involvement, where many countries are involved in building them. And it requires state-of-the-art development in technology, new ideas and new ways to look at the light that is being sent to us by the different objects. So

it has to...well, it answers itself. You need some commitment for the long term in being able to build up all the instruments you need to answer those questions and tackle them.

That's where the second part comes in. Astronomy is not like chemistry. In chemistry you submit projects. You want to synthesize a molecule to, let's say, get rid of all the plastic that is polluting. When you find that compound, you go on to another project. In astronomy it's more of a program. It's a continuum in the sense that to reach the final answer, you have to start with some more basic stuff and build on the answers you get. So once again, you need some long-term commitment in the funding in order to reach that goal and reach the solutions you seek.

The Chair: We're on a second round now. We're going to go to John, then Jerry, and we're going to try to get some second questions in by Paul and Andy and Brad—short ones.

Okay, John.

Mr. John Duncan (Vancouver Island North, CPC): I'll start with Mr. Douglas.

I want to congratulate you on achieving with the two Canadian railroads in New York State what we've been unable to do anywhere in Canada, which is get them to—

Mr. Garry Douglas: They actually seem to like each other.

Mr. John Duncan: Well, I know that they know the rules are different on the other side of the border. I have a family member who was a significant player with one of the railways. Every state has its own complexities. And of course the further south the rail acquisitions got in the U.S., the more culture shock the Canadian executives had when they had to deal with the old boys further south.

But congratulations, in any case.

In regard to this \$100-million U.S. commitment to this border infrastructure, is there any suggestion or any obvious political strategy or boldness on the part of U.S. legislators to try to tie that to a Canadian commitment? I'm absolutely flabbergasted that here once again Canada is doing nothing on what should be one of our three priority infrastructures. Our ports, airports, and border infrastructure should be our three priority items, and we're not there as a nation. All of your arguments resonate.

What's in it for the U.S. to go into this unilaterally?

• (1655)

Mr. Garry Douglas: First of all, from the U.S. perspective it's a security imperative. So a lot of resources are going to the border, as I said before, in the name of security. As long as there are folks on the ground watching that and keeping our members of Congress on top of it so that the investments are made with some common sense and in sync with our agendas, it actually is something to take advantage of. If there weren't some interests on the ground making sure that common sense is applied, there could be some things about it that could be more interfering.

So there is that difference. Security is the imperative in Washington, and in fact members of Congress will work to out compete each other on how much money they're throwing at "security".

Mr. John Duncan: So would it be fair to say that with the completion of this facility, given a lack of reciprocity on the Canadian side, this border crossing could actually become a wall rather than a passage?

Mr. Garry Douglas: Absolutely. It doesn't work unless it works both ways. These are two-way gates. Every truck that goes in one direction eventually has to return in the other direction.

Mr. John Duncan: That's actually a message the members of this committee would be wise to deliver, and I thank you for that message.

I'm not going to prolong that conversation, because I want to get to the other two groups.

Mr. Garry Douglas: I would also make one other point on that, though. It also ties in to ports. I mentioned the bloc-to-bloc realignment and the emergence of fewer but bigger mega-ports serving both countries, Vancouver and Montreal in particular. This is Montreal's connection and therefore Montreal's prosperity, if you believe that where things move is where prosperity occurs. If you believe these mega-ports are what are going to drive prosperity, well, then these border crossings have to work in both directions in order for places like the port of Montreal or the port of Vancouver or Halifax to work to their maximum as well.

Mr. John Duncan: Thank you very much.

I'll just move quickly to the astronomy coalition. I've been here for a while; I was here when the astronomy people were lobbying for funding several years ago. There was some brinkmanship played and the funding came. The benefits were obvious before, and it looks like it's worked out as predicted.

The only questions I have are on details around that. First of all, a lot of rural Canada deals with community colleges, not universities. Everything in the presentation talks about universities. The college level deserves some attention in all of this, so I would ask a question about that. I'd also suggest that would be a good way to increase public outreach on what you're doing and why it's important for the taxpayer to support that.

One of the mandates of this committee is to talk about smart regulations. The way this conversation has drifted both with Manon and with the astronomy group leads me to believe the term of funding commitment actually ties in with making the regulatory

regime work better, because there's a lot less wheel spinning on your part if the commitments are for a longer period of time. I don't think we've ever talked about smart regulation in terms of length of commitment for federal disbursements, but that's been brought home by both groups today, so maybe you could comment on that briefly.

The Chair: Ms. Harris.

Ms. Gretchen Harris: In terms of reaching people in different parts of Canada, in big cities and small towns and small colleges, we're developing connections in the smaller colleges, and astronomy courses are taught at all of these places. We as a society have a lectureship that is small, modest at this point, but it is designed to take astronomers out into smaller towns and give them the chance to speak to and connect with people elsewhere who don't normally have the kind of opportunity found in the bigger places.

• (1700)

Mr. John Duncan: Do you have a speaker's forum? I'd love to sponsor a speaker to come into my riding and talk about astronomy, and I would get crowds out.

Ms. Gretchen Harris: Talk to me. Get in touch with me, the Canadian Astronomical Society, and we have a list of speakers we would happily provide for you.

Mr. John Duncan: I brought an earthquake guy in and I had huge crowds. Astronomy is the same thing.

Ms. Gretchen Harris: Absolutely, and one of the main goals of the Canadian Astronomical Society, imprinted in the long-range plan, is to work to have about 1% or 1.5% of funding towards any of these projects in the longer scheme of things devoted to outreach, to community awareness and understanding, because we recognize that by having people understand what we're doing, we're going to get better support. We also recognize that's one of the places where we catch the attention and the excitement of people of all ages.

Mr. John Duncan: Members of Parliament can help.

Ms. Gretchen Harris: I keep telling my colleagues they should talk to their MPs a lot, because I recognize that dialogue is a good idea.

Mr. John Duncan: I think my smart regulation question probably has been answered by the discussion up to now.

I would like to ask Manon a question. I didn't do any background before you appeared today so I just have your documentation, but when you describe a science centre, what actually does that mean? Are you referring to who funds it? Does that mean a science centre has to be federally funded? I understand your point that of the 20 largest centres you're the seventh largest, and you have no science centre. I'm trying to understand how you define a science centre, just so this committee can comprehend how to address your concern.

[Translation]

Ms. Manon Th  berge: I want to be sure I clearly understood your question. Are you asking me what exactly a science centre is?

[English]

Mr. John Duncan: Yes. How would you define a science centre in a way that would make it relevant to this committee's deliberations?

Mr. Jim Marchbank: I could try to answer that. Our mission at Science North is to involve people in the relationship between science and technology in everyday life. So it's a place or an organization that broadens public understanding of science, brings science to people, and creates opportunities for informal learning in science. Some would liken us to museums, but generally science centres do not have collections.

Mr. John Duncan: I'm from British Columbia. So in Vancouver—

Mr. Jim Marchbank: Science World in Vancouver is one of our major members. Science World is a good science centre. The HR MacMillan Space Centre is also a science centre, but it's focused more on astronomy. The Exploration Place in Prince George is also part science centre and part history museum.

We have buildings where we have hands-on activities, involvement, and participation, but most of us also do outreach. Manon doesn't have a building, so she does great work in outreach. We in Sudbury do outreach as much as we can afford to throughout northern Ontario. So we run science camps in the chair's riding and other places throughout northeastern Ontario, and run workshop-type programming that involves kids and families in science.

Mr. John Duncan: Great.

[Translation]

Ms. Manon Th  berge: The first reason why we need a science centre in Quebec City is that we need to offer a significant number of activities in order to make a difference. Right now, we do a little bit in one class and a little bit in another. We do part of the job, but we are not moving ahead. We don't have the critical mass to make changes in our community. People don't know what is going on in the community as far as science and technology are concerned. Quebec City is viewed as a city of public servants, but now 19% of its population work in the science and technology sector, in 900 different companies. People don't know this, not even the local people.

Consequently, we could say that Quebec City is lagging behind the rest of Canada because it does not have a science centre. Most centres have been established for 15 or 20 years. Perhaps this was the normal course of events. Now the economy is diversified and we are ready. Now we need action to keep the wheel turning and to move ahead, because our issue... This has been in existence for such a short time that we could very well fall back further. As things now stand, our GDP is 25% lower than that of Canada's other major cities. There is a lot of work that needs to be done. This tool will enable us to get the collective ball rolling with respect to science and technology in order to inspire people and wet their appetites for innovation and community development.

The mission of the project is, in fact, to inspire people and make them want to contribute.

• (1705)

[English]

Mr. John Duncan: I think I know another way to pose my question that will get to an answer that will help the committee. Is that okay?

The Chair: I need to get Jerry in. I'm going to try to divide the rest of the time between Paul, Andy, and Brad. But maybe you and Brad could do that last piece together. How's that?

Mr. John Duncan: Sure.

The Chair: I'll go to Jerry.

Hon. Jerry Pickard (Chatham-Kent—Essex, Lib.): Thank you very much, Mr. Chair.

Mr. Douglas, I was really impressed by your presentation. I think we need to rethink what we're doing as far as bloc trading goes. There's no question about that. But certainly realizing Canada's position with the United States, I have a conflict in some ways in what you had given and I'm not really clear about that.

In some ways you suggested that Canada should try to project the message of a bilateral trade between Canada and the United States, yet in your initial overall comments you suggested that we have to move to a hemispheric trade position, which seems somewhat of a conflict, at least in my view.

Maybe I can just go on and make a couple of other comments about things I've heard.

Certain border points or crossings are extremely in need of enhancement on the U.S. side. Others need enhancement on the Canadian side. In Windsor, for example, we're talking about a \$1-billion investment, which is an awful lot more than the U.S. has invested in the Plattsburgh border crossing.

You said you have to see where the Canadian government is going on that border crossing. Is there a direct problem with goods flowing from the U.S. into Canada at that location? I'm not aware of that.

I would suggest that when I go to Windsor and look at the problem there of transportation, it's not just transportation; it's all the other elements that have come about. For instance, it used to take 30 seconds to clear a truck going through Windsor. Now it's two minutes to clear a truck going across that border, which means that if we don't have four times as many booths to check each truck going through, we're not going to keep up with the capacity we had before 9/11.

On the other hand, what I saw happen was traffic backing up, actually a parking lot being created on the Ambassador Bridge, a parking lot being created down Huron Church Road, the main entry to the Ambassador Bridge, a parking lot in some ways on Wyandotte Street and other streets that lead to the bridge on the Canadian side, all this congestion.

We're talking about smart technology, the FAST program. We're talking about all the different elements that have to go together in order to resolve the problem. You're probably well aware of that. But the visual problem is businesses that have to sit in front of those trucks, the safety of pedestrians. The quality of life concerns that it brings down in the Windsor area are tremendous. There's no question that it's a problem. That's non-debatable, really.

That same problem doesn't exist in Detroit. I don't see backups of trucks on the freeways in Detroit.

What Canada faces is the fact that if an orange alert comes, or a higher alert level comes, that traffic just grinds to a stop. We are extremely vulnerable.

Realizing all that and putting it in context, we are the major trading partner for 38 states in the United States, not just the border communities. Concerning our business connections, I spend a lot of time, through the Canadian consulate, meeting with all kinds of business people, meeting with border members of Congress and the Senate, meeting with people who have an influence on that, and still we're extremely vulnerable because of the clear threat of terrorism.

In the United States now, things do not work as a normal situation between Canada and the United States. So I guess I'll go back to your crossing and ask, do you see the same problem as I mentioned, the congestion, in your area?

But then again, it appears to me, at least, that things flow into Canada an awful lot easier than they flow into the United States at this point in history.

• (1710)

The Chair: Thank you, Jerry.

Mr. Douglas.

Mr. Garry Douglas: Let's see, where do I start? There are several questions there.

On the big picture, hemispheric versus bilateral, we need to do both. My point is that in the current context of the three countries and eventually as other countries are added in the years ahead, at every opportunity the implementation needs to be multi-tracked rather than one-size-fits-all. The economies are different, the problems are different, and the challenges are different.

If, in the current three-nation picture, everything ends up being a trilateral conversation, then the implementation is going to be at the speed of the lowest common denominator, which in most cases is going to be the U.S.-Mexican speed. In terms of implementation and carrying out efforts towards the general goals all three are working towards, any time Canada and the U.S. can keep those detailed conversations bilateral, we need to do so, because more progress can be made on some fronts than on others if that remains the case. I don't think those are two separate things at all; it's a matter of how you get there, and it's in Canada's interest to keep the implementation bilateral versus trilateral.

At Lacolle we have had since the late nineties—and will continue to have until we build the new U.S. facilities—similar kinds of delays and backups into the U.S. southbound to what has been the

case at the Peace Bridge, at Lewiston, and at Detroit-Windsor. It is on that magnitude; at times it has been even worse.

Northbound, is it easier to get into Canada than it is southbound into the U.S.? You bet it is. It's because there isn't the same regulatory regimen at the border; you don't have the FDA; the requirements are different. Also, the volume of goods is different. There is a whole lot more stuff going south than coming north in terms of the gross volume. More of the trucks, for example, going back to Quebec are actually going back empty, more of the railcars are going back empty because there's more stuff going in one direction, and something empty doesn't require as much processing as something full. There are some other reasons things move inherently more quickly in one direction than in the other.

Someday, hopefully, we'll come to a point where that's not the case anymore, but in the near term, for some years to come, the current situation at the border, particular on the U.S. side, is going to remain as it is. It's just in our mutual interest to make it work as best we can.

The kind of infrastructure investment needed at Detroit-Windsor, the Peace Bridge, and some other major locations is immense. Part of that also is because they're bridges and tunnels, which are immensely more expensive to do than facilities and investments at land crossings, like Champlain-Lacolle or out at Blaine, Washington.

My suggestion isn't that the priorities are wrong. It's that in terms of where the money is going at particular crossings, given the importance of these commercial gateways generally, Canada needs to be doing more generally for all of them and there needs to be a master plan for each and every one of them. That does not exist yet.

There is no real answer as to what is needed at Lacolle, because nobody is asking the question. Nobody is talking to the Canadian federal government to give them a master plan for Lacolle. If you made it, what should it ideally be for you to service all of its needs now and for twenty years to come? What should the facilities look like? What staffing levels are needed? What are the qualifications for staff? What are the services that ought to be there? What are the technology requirements that aren't being met? Nobody is asking those questions on a port-by-port basis, and that needs to happen.

I'm not saying it's happening on the U.S. side either. What's happening on the U.S. side is that the squeaky wheel is getting the grease. We got really squeaky on our side.

But there needs to be, particularly given how critically important this is to Canada, some kind of mandate where you and the stakeholder community of every one of these gateways produce what is needed for that border crossing. It's going to be different at each one, but it ought to be done for each one.

• (1715)

The Chair: Thank you.

Just very quickly, Jerry.

Hon. Jerry Pickard: From the information I heard on science centres—I may be wrong on this, but I interpret what you said to be that areas where they generate a fair amount of work with young people, with middle-aged people, to have opportunities to explore science activities such as the Toronto science centre and others across the country.... I know the federal government has not been involved in that. Most of those have been set up on a pay-as-you-go basis, where they charge a certain amount for people to go in and be part of that activity.

The federal government has, as one of our witnesses pointed out, spent a lot of dollars, a lot of capital, and a lot of energy on NSERC, through which universities and other professions are able to tap into high levels of scientific activity. We also sponsor individual groups such as Genome Canada; there's a huge investment there.

Is the suggestion that we change, or move, or readjust—however you want to call it—financing for science in this country? We spend a fair amount of money. The question is, how do you perceive that spending should change in order to bring you into the ball game or to do other things that are necessary to meet what you're requesting?

The Chair: Thank you, Jerry.

I want to try to get the coalition to get to Mr. Pickard's question as quickly as they can. I want to try to squeeze in a few more people before we have to—

Ms. Gretchen Harris: I'll start the answer, if I can.

The Chair: Okay. I'll get you to come to the point, Ms. Harris.

Thank you very much.

Ms. Gretchen Harris: Yes, the projects we're working on now in astronomy priorities are of a scale that is vastly greater than ever before, and a scale that's vastly greater than the current funding schemes can handle effectively. As a result, we are going here and going there and trying to get our bits.

In terms of what's happening with funding university researchers through something like NSERC, the university community in astronomy is growing and the university community across the country is growing in all disciplines. We need to be able to provide the researchers with their continuing funding, and we also need to be able to provide the researchers with the best facilities to do their job. What we're saying is that the large-scale facilities we need cannot be funded adequately with the current scheme, and we're trying to come up with ideas as to how that situation could be improved.

The Chair: We'll let Mr. Marchbank jump in quickly, and then we'll thank Jerry and move on. Thank you.

Jim, go ahead.

Mr. Jim Marchbank: Our point is that you need to try to find mechanisms to encourage more young people to pursue science as a study topic and as a career. We don't have enough to sustain our long-term economy and quality of life. Investing some of your science dollars—and we're not talking a lot, we're not talking billions, we're talking millions, and maybe into double digits, but not even necessarily much further than that—into informal science learning will begin to create the kind of leverage and impact to encourage young people to do that, and therefore to increase the

number who have access when they get to university and to careers and to those things that contribute to our economy and quality of life.

The Chair: Thank you very much.

I'm going to try to squeeze in three more, for four minutes each.

Paul.

[*Translation*]

Mr. Paul Crête: My question is for all three groups.

If, for example, our committee were to make certain recommendations and the government were to follow up on them, what would the most positive result be in 20 years? For the Boîte à science, would it be to have the centre open and would it mean having the same type of thing for the Canadian Coalition for Astronomy? What would be the best result you could hope to achieve? I would also like to ask Mr. Douglas this question, with respect to infrastructure.

[*English*]

The Chair: One minute each, thank you.

Monsieur Racine.

• (1720)

[*Translation*]

Prof. René Racine: In 20 years' time, with adequate contributions, I can assure you that Canadian astronomy will be the best in the world and the industry supporting it will benefit from international contracts so big that they are difficult to imagine today.

We would like to build a telescope that is 30 metres long. This will be the first telescope of this type. If we build it, companies such as AMEC Dynamic Structures will be manufacturing all of the 30-metre telescopes.

[*English*]

The Chair: Manon or Mr. Marchbank.

[*Translation*]

Ms. Manon Théberge: If we were to begin right away—indeed, if we had begun yesterday—the impact of demographics on the economy in 20 years' time would be lessened because people would be able to take the changes in stride. There will be one less person for two dependents. That requires, not a little, but a great deal of action.

We are not even aware of the changes taking place, because they are occurring so slowly. We live in the present, day after day. Meanwhile, the child grows up. We have to prepare for change. This generation is going to have to deal with an important issue. In order for 80 workers to be able to create enough wealth to meet the needs of 100 people, they're going to have to be very talented.

In Quebec, only 60% of our young people complete their high school studies in five years. So we are not by any means close to having the pool of talent we need. We will have to put our energy into ensuring that this passion is ignited and then we will have to look after the facilities that will be established.

It is pointless to develop too many things if we do not have the critical mass for making a difference. If we all put our shoulder to the wheel, in 20 years' time, we will have made changes resulting in our young people, aged 5 to 24, forming a workforce able to prevent a major slowdown in our economy.

[English]

Mr. Garry Douglas: In 20 years, hopefully problems at the border will have faded and the security imperative in the U.S. will have resolved itself, so a whole lot of things will be easier by then. Beyond that, I foresee unprecedented prosperity in North America, beyond anything we think of today, for our children and our grandchildren. The phenomenon of collaboration, sharing, and integration between interests in Canada and the U.S. will have played an enormous role in bringing about and sustaining that new generation of prosperity, including in the types of technology sectors that have been touched on today, which need to come together, in fact, to make the whole greater than the sum of the parts.

The Chair: Well done. Thank you.

Andy, see if you can do as well as that in three or four minutes.

Mr. Andy Savoy: Very good.

Garry, you talked about binational corridors and about how more and more trade would be focused through a number of binational corridors across Canada. You felt that a critical mass would develop, you would have more facilities to service it, and it would be a most efficient way of transporting our goods—and services, to some extent—across the border.

Where are those binational corridors? I understand that you're interested in your corridor, but have you looked specifically across Canada at any specific binational corridors that we should be promoting, developing, encouraging?

Mr. Garry Douglas: Certainly there are several that are being actively worked at the present time. None of them are being artificially created. The world is deciding that these regions are going to emerge; it's just a matter of whether we're going to be real smart about exploiting them, getting impediments out the way and maximizing the value we can get out of them.

There's Quebec-New York, obviously, and western New York-Ontario, really cutting across to the Detroit-Windsor and Sarnia-Michigan area. You've got a kind of two-state, single-province swath across there. To a degree, the Quebec-New York corridor also cuts across the St. Lawrence Seaway to the Great Lakes. So there's a cross-current connection there as well, which is vital.

In the Cascadia area of British Columbia and in Washington, the Vancouver-Seattle region is critically important. In the centre, in the Great Plains area—it used to be called the Red River area, but I think the new designation is Great Plains—there is a lot of cross-border collaboration in that heartland region. It's not quite as focused on a highway, a transportation system; it's more about the bigger picture, the movement of commodities over a several-province area and a several-state area.

Those are the key ones. There are several lesser ones. And I say “lesser” in the sense of the levels of collaboration and traffic right now, but they have a lot of potential. For example, I think with some facilitation, thought, and more strategic commitment, there could be

a lot more bang between New England and the Maritime provinces, potentially. It just seems to make sense.

• (1725)

Mr. Andy Savoy: I come from the Maritimes, and a couple of border points there are very important.

To the astronomy group, I'd like to get back to R and D as I see it traditionally. I see R and D—and our economies, moving forward—as being primarily industry focused, with support from academia and research institutions. Do you see that as a challenge for the astronomy industry per se? From what I see now, the R and D that we perform in the industry is primarily government sponsored, or government focused, with the partnership then developed with the private sector, such as AMEC, for example.

Am I reading this wrong? I'm trying to equate it with other sectors, if you understand what I mean. What would be your take on that? Does that create more of a challenge for the astronomy industry?

Mr. Michael Jolliffe: I'll just answer for us and then turn it over to others.

In our case, we start right at the beginning. Depending on what projects we're working on, work might begin in the institute, like at the NRC, and then we'll engage outside partners. Our experience with all of these facilities is that, in all of the projects we work on, we start at the very beginning. There's no lag time. It's right at the beginning.

So we engage right at the beginning. And it's not just with government, it's with universities as well. You have all three at the table at the very beginning.

Mr. Andy Savoy: Is it initiated by industry? Is that what you're saying? That's what I'm wondering. On the initiation of the projects, internationally, are they...? Perhaps you could run me through the process.

Is it going to be a challenge? I guess that's what I'm saying.

Ms. Gretchen Harris: The process is initiated by the scientists who want to do the research, at the universities and at the NRC labs, and they work together to figure out what the questions are that they want to answer and what they need to have in order to answer those questions. Then they begin to talk to the people in small companies and large companies to see how those questions could be answered with the development of new technologies and new capabilities.

So it's always driven by the scientific ideas and the scientific questions. Then the collaboration with industry follows, and follows very well.

The Chair: That's it, Andy?

Brad and John are going to wind things up, I think, in the last few minutes.

Mr. John Duncan: I would like to ask Manon the question I never got to pose quite the right way. Would it be fair to say that the 19 science centres we're talking about, the 19 of the top 20 cities you're talking about, presumably would all have a major or significant portion of federal funding?

Ms. Manon Th  berge: No.

Mr. John Duncan: It's not fair to say that? Okay.

I just want to make one comment, then, to Garry Douglas again.

A perception I have, and I think it's fairly accurate, is that a lot of Canadians, including members of Parliament, haven't caught up to the tilt that's occurred in the United States. The U.S. south is obviously your economic heartland right now. It's also politically very crucial.

We've had two ambassadors announced recently, for Mexico and Canada. I think it's very instructive that the U.S. ambassador to Mexico is intimately familiar with Mexico: speaks Spanish, is from a Hispanic background, and has probably been in Mexico, at some point or another, every year for the last 30 years. We have a U.S. ambassador to Canada who hasn't been in Canada for 30 years.

So this is what's happening. And every time we get a Canadian member of Parliament or other significant person who insults our southern neighbour, this just destroys our relationship.

At any rate, there are many Canadians who understand and recognize all this. We're certainly hopeful that we can recast the arrangement and get back to where we are the reliable neighbour that we once were proud to be. Certainly that's the feeling in much of the country.

• (1730)

The Chair: The last word is to our international guest.

Mr. Garry Douglas: There's an important little point in there, if I may. You did allude to something that is significant for Canada to understand in terms of being able to get understanding on the U.S. side for the U.S.-Canadian relationship and the U.S.-Canadian border. I pointed out how shallow that understanding is. The U.S. population is also shifting south, and political power is shifting south. Every ten years, when Congress is redistricted, the northern border states have fewer Congressmen.

So it's only going to become more challenging. Already only a small number of Congressmen understand the Canadian border, and every ten years there will be fewer Congressmen who do.

The Chair: Interesting point.

Brad, did you want to jump in here?

Mr. Bradley Trost: I guess our time here is pretty much gone, but I'll say thank you to everyone here. This was very much appreciated. The subject material was a bit scattered, but actually I think it worked out not too badly, all in all.

To Mr. Douglas, you list, in your written presentation, "Border, Border, Border", "Transportation", and "Economic Development Collaboration". Now, in our questioning, we went through transportation a little bit, and borders, but in terms of economic development collaboration, both the positive and negative side, I'm just curious to hear any last comments you would have. Other than transportation and border, what would be the major irritants?

As well, are there any particular opportunities for collaboration in a general sense that you would have spotted?

The Chair: How's that for 45 seconds, Garry?

Mr. Garry Douglas: I think one of the key opportunities is in the technology sectors—the ones we know about include nanotechnology, biotechnology, and so on—and tapping the greater power that's going to come from both facilitating and encouraging collaboration. I don't see any impediments there other than the need to just encourage it and have people who will facilitate it and help make it happen. I think that's where a lot of great power lies.

The Chair: On behalf of all committee members, I can say with absolute assurance that this has been an excellent round table. Yes, you come from diverse areas of the economy, but we're all looking at solving the same problem, which is to make Canada more productive and to do better for all of our citizens.

With that, I'll thank you very much for taking the time to be here with us today.

We are adjourned.

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