

on R & D done in the United States—but then very largely on R & D done in Canada. The work done in Canada has undoubtedly benefited Canada, but not exclusively; it has also benefited the United States. But, without access to the original work in the United States first, the development just would not have happened in Canada.

In another field, with which I am connected, RCA Victor Company Ltd. conducts a very substantial research and development effort in Canada—and, by arrangement with its parent, it has specialized in certain areas of research in Canada which complement rather than duplicate the research efforts of RCA in the United States. This means that the experts in these chosen fields are in Canada, and there is therefore a strong reason why the development of a new product should be carried out in Canada—and, indeed, the technical and sales service function performed by Canada. This is what has happened with manufacturing in Canada and world-wide sales made from Canada of these particular products. Presumably, this will continue so long as other Canadian conditions, such as taxation, are not more onerous than in the United States. But, here again, the R & D effort, while centered in Canada, is not exclusively Canadian. There must be a free play between the Canadian scientists and their counterparts in the United States. The Canadian researchers need access to what has been done in related fields in the United States laboratories and, indeed, the United States researchers need similar access to the Canadian effort. While there can be some degree of specialization between the two, they cannot operate in watertight compartments.

Any attempt to “nationalize” the results of the Canadian effort, either by legislation or by regulation, can only act in one direction—to reduce the effectiveness of the Canadian research operations—with a consequent diminution of its contribution to our welfare.

I do not want to suggest for one moment that a research effort in a purely Canadian owned and operated company is necessarily inferior to a research effort tied into an international company. It simply means that the purely Canadian company must find other means of getting such information as it needs from foreign sources, because this it must have.

My point is that, with the tremendous development of international companies and the huge reservoir of technical knowledge that they have, we defeat our own ends if in

our research and development policy we discriminate in any way against them as compared to purely Canadian companies.

My views, I am sure, are coloured because my industrial experience has been entirely with the Canadian subsidiary of a large United States company. But this is the area that has caused concern to those in Ottawa who have framed our industrial research incentive plans, and are concerned that the results of research should “benefit Canada”.

6. The Concept of Centres of Excellence and the Brain “Drain” or “Gain”:

There is only one more small point I want to make, and that is that we hear a good deal these days about the “brain drain” and questions are raised about the wisdom of spending large sums of public money to develop highly trained scientists who, when their education is completed, go immediately to the United States.

Undoubtedly there will be some such movement, but it is not just in one direction. Each year Canada receives quite a substantial number of trained scientists from the United Kingdom, Europe and other countries, and the net “drain” or, possibly, “gain” is a very different matter from the gross figures.

However, this situation simply reflects another aspect of the international nature of the scientific endeavour; and, if we want to deal with it, there is in my mind only one basic approach that we can take.

The good scientists who go to the United States are attracted, I believe, not so much by the somewhat higher incomes they make but by the wider opportunities they think they will have in their chosen field. Probably more than in most other types of employment, the attraction to a good scientific researcher of working with or under recognized leaders in the field is the strongest drawing card; and the country where the work is carried out is secondary. Obviously living and working conditions have to be satisfactory. Columbia Cellulose, for example, was unable to build up a good research organization at Prince Rupert, which we tried to do. Eventually we had to move the whole department to Vancouver because, with such a demand for good men in the pulp and paper field, we could not get first-class recruits to separate themselves from the larger centres, particularly those with appropriate universities and other research establishments in the environs.