

thought at first and that the misconceptions which appear so clearly in his critical analysis of our report probably originate from the fact that he does not understand senators too well.

Hon. Mr. Flynn: He would not be the only one.

Hon. Mr. Lamontagne: I can assure Dr. Herzberg that the communist ideology of bureaucratic and central control over the activities of the pure scientist, if it exists in the Soviet Union, will not originate in Canada from the Senate.

I would like now to deal with the critical analysis of our report as presented by Professor Reuber. Honourable senators will recall his olympian condemnation which I have already quoted. Of the seven pages of comment that he wrote, he devotes two pages to the different purposes served by science activities, and while he uses a slightly different terminology his observations are very similar to those contained in the committee's report. It is probably not here, therefore, that our report was "lacking in perspective" and "weak in its analysis".

Further on, Professor Reuber makes a point which intrigued me very much. He says:

A whole chapter on Canadian science in international perspective at some points seems to imply that we should duplicate the pattern followed elsewhere. This makes no more sense than to argue that the pattern of Canadian production and trade should duplicate that in other countries.

This is where, in Professor Reuber's view, the report "is most deficient".

Surely Professor Reuber does not suggest here that in the committee's views Canada should duplicate the R & D projects and programs which are being carried out elsewhere. This, of course, would be nonsense. It goes without saying, although Professor Reuber says it, that Canada should, like any other country, apply the principle of comparative advantage and select those R & D programs which correspond to our capacity, ability and needs. The whole purpose of chapter 6 was to show precisely that, as compared with most other countries, Canada had not organized her national science effort along these lines and that our failure to do so explained to a large extent the poor output of our R & D activities in terms of our economic and social goals. In that chapter the committee described the rising R & D budgets in the developed countries as an international scientific and technological race aimed more and more at promoting innovation and economic growth. We showed, with the figures provided by OECD, that Canada was lagging in that race and that the organization and distribution of our national effort, as compared with those of other countries, were not conducive to the maximization of our international comparative advantage, since our R & D activities were, in relative terms, too much concentrated on research in universities and government laboratories rather than on development work in industry. We underlined exactly the same point that Professor Reuber emphasized and yet, according to him, it is precisely in this respect that our report "is most defective". I cannot

[Hon. Mr. Lamontagne.]

see how our country can apply the principle of comparative advantage in this competitive international race otherwise than by adjusting the common pattern prevailing in the most innovative societies to our capacity, our ability and our needs. Thus, this criticism made by Professor Reuber is either misleading or unjustified.

In the last section of his critical analysis, Dr. Reuber raises five issues which deserve some mention. First, he refers to the committee's observation about the relatively low support given to the social sciences and he says: "The report suggests that this is inadequate, and I agree." Therefore, on this first point he is in agreement with the report.

Secondly, he mentions our suggestion to funnel "more science activity through industry" and he adds: "In general I agree with this approach, provided that in the process, the broader external effects of scientific endeavour are not lost sight of."

Thirdly, he raises "the question of pure versus applied research". He states: "And it may well be, as the report implies, that the present level of pure research in Canada could now support a much larger volume of applied research." Thus, he agrees with us again on this third point. He goes on to say: "But it does not follow that the appropriate policy is to increase applied research by reducing the scale of pure research." I want to emphasize here that the committee has not suggested this method of establishing a more balanced effort, as Dr. Reuber seems to imply.

Fourthly, he admits that our report "does provide us with figures which indicate that during the 1960's Canada devoted fewer resources to all areas of science than any other major industrial country with the exception of Belgium," but he complains that the report "says relatively little" about that issue. What else can you say about it except to recommend that Canada's total effort should be increased, but it was not the purpose of Volume I to make recommendations.

Finally, Dr. Reuber raises the question of centralization versus decentralization as systems for formulating science policy. He says: "No one disputes the need for greater co-ordination and general direction about broad priorities from the centre. At the same time, I think it is essential that specific science activities be subjected to detailed examination in the light of the particular needs of government agencies, universities and business enterprises." Then he claims that in the report these two systems "seem to be posed as alternatives, which I believe is wrong". This proves that Dr. Reuber is confused, to say the least. We have said repeatedly that an overall science policy and specific science policies should not be considered as alternative but as complementary systems. In the last chapter of the report, we stated on page 281:

It must be emphasized again that the role of an overall science policy, like that of a macro-economic policy, is not to replace specific policies but to support them with a basic framework, broad terms of reference and criteria to assess their efficiency.