[*Translation*]

Professor Bonneau: Perhaps I might simply say that, in the Province of Quebec as well, this type of problem between universities has arisen and is being resolved similarly to what has been done in Ontario. In the sense of a co-ordination of total research effort, each Ontario university attempts to find the spot where it would be most useful to the regional group. Personally, I feel that such concerted action should be on a regional rather than a provincial level. I am thinking particularly of the Atlantic provinces where the concentration of effort, at least according to what is said down there, appears to be on a regional rather than a provincial scale.

Perhaps there are other areas in Canada where action might be taken on a regional basis. In any event, this effort towards concentration should be made at all levels of university activities even if, at present, we do have a government agency concerned with research and development.

[*English*]

The Chairman: I am told that coffee is served.

Senator Bourget: Before coffee is served, would you have any objection to Dr. Bonneau answering my question?

The Chairman: No, proceed.

[*Translation*]

Professor Bonneau: Mr. Chairman, I should like to reply to Senator Bourget by quoting the following figures as pursuant to our discussion: in 1973, approximately 20 percent of the total number of Ph.D degrees will be awarded in engineering and 80 percent in the sciences.

Senator Bourget: What is the reason for this trend, for the fact that engineers, or rather Ph.D's, are found in research and physics rather than in engineering? Is there a particular reason for this? Is it due to the fact that they perhaps receive less money? Or is there a movement in favour of this branch?

Professor Bonneau: Mr. Chairman, I feel we need a little time to expand on this matter.

Senator Bourget: The reason why I asked the question—and to return to what Dr. Gauvin said—is that the senators are interested in seeing whether there would not be a way of improving the situation with regard to practical research so that we might attain the objectives for which the National Research Council was formed in the beginning. It suggests to me—Dr. Schneider mentioned the fact and I was also able to read similar comments in other publications, the Engineers' Institute, the Glassco report—that little has been done in this respect. I do not want to put the blame on anyone. It seems to me, from the point of view of the economic interest of our country, that the emphasis should now be placed on this part of research which would bring dollars and cents, let's put it bluntly, to the country. I feel it is necessary that we have pure research as it is very important; it is the basis, but, on the other hand, I feel we must not forget the other aspect, the material interest, if you will.

The Chairman: I shall give two minutes to Dr. Bonneau.

Professor Bonneau: Thank you, Mr. Chairman. The question does, indeed, merit development and this would take some time. I shall try to be brief but I shall not do justice to the question.

At present, in the universities, applied research tends to be set aside for what might be called pure research for a very simple reason: that is, the link between industry and the university is still extremely small and, in certain cases, nonexistent so that a research worker in mechanical or civil engineering will have considerable freedom in his research. It is not easy to lead the student to the construction site with that, but given this freedom in applied research, we are able to make better use of the materials we have, even if our work is not related to engineering. If it is not related to engineering, it would still be basic research but in a field which is applied. This is, I believe, the reason why some applied research is carried out everywhere.

We are not an industrial country. There are whole areas in which the universities do applied research for nonexistent industries with the result that the projects are too impractical. Herein lies the tragedy, I feel, if we want to call it that.

Finally, the problem in Canada is that there are very few industries as compared to the industrial countries—I mention Sweden. In Sweden there is an extremely close link between the industries and the universities and these problems assume a very different form.