

**Dr. Mackenzie:** This is a very difficult question. As we all know when we are fighting for our lives normal thought goes out the window. I am afraid we are getting into a field I should not talk about, because it really is a current matter of broad political policy.

**Senator Grosart:** I do not know of anyone better qualified to discuss that than you are, sir.

**Senator Desruisseaux:** I have rather a brief question. We are often compared to the other countries as to expenditures of research, and we have been informed that some countries spend so much more than others. One example is Sweden. Do these expenditures in all cases include the military?

**Dr. Mackenzie:** I cannot answer that off-hand, but certainly our expenditures do, as do those of the United States, England, and France. I do not know the situation in Sweden, but I feel sure that theirs do too.

**Senator Desruisseaux:** Concerning this discrepancy that we are supposed to have in the expenditure for military purposes, in all humility, would you like to comment on what we have achieved so far by way of research in comparison to other countries? Are we satisfied?

**Senator Sullivan:** For example, the Defence Research Board.

**Dr. Mackenzie:** If we go back to 1939 you will note we were doing little military research then. From the standpoint of military scientific development, the United States, England, France and Japan were relatively advanced. All countries increased such activities during the war. Canada, starting from nothing in 1939, came out of the war with a respectable world standing in certain military fields and in the technical competence of its industries. As you know, in the post-war years Canada became recognized as a first-class industrial and trading nation.

**Senator Desruisseaux:** If we were to go into 50 per cent and 100 per cent more expenditure in research, do you feel that we have presently the men to handle this?

**Dr. Mackenzie:** Not available at the moment.

**Senator Desruisseaux:** I ask that because you seem to consider it important.

**Dr. Mackenzie:** We have no sizeable pool of unemployed scientists. Qualified research scientists can not be made in a day.

**Senator Desruisseaux:** Are these being formed now, doctor?

**Dr. Mackenzie:** Oh, yes.

**The Chairman:** Through the scholarship scheme.

**Dr. Mackenzie:** Look at the numbers of Ph.D.s we are turning out: a thousand a year. I do not like to be complacent, but I do say that we have no greater problem than any other country in providing a future supply of trained scientists.

**Senator Carter:** Dr. Mackenzie, if we could increase our research expenditures by 50 per cent over a five- or ten-year period, where would you recommend that this extra money be spent? What areas of research are perhaps not getting as much attention as they should?

**Dr. Mackenzie:** This is the sort of long-term policy that your committee should be considering, as there is no reliable instant answer. Also, any answer given today might not be appropriate in five years' time. I do not know the answer but I am interested in the question and feel sure it is one that should receive intensive and continuous attention.

**Senator Carter:** I just want to get your ideas of what areas you think are being neglected.

**Dr. Mackenzie:** I cannot do that right now.

**Senator Sullivan:** Mr. Chairman, reverting to the question Senator Desruisseaux asked Dr. Mackenzie about military research, would you not say, Dr. Mackenzie, that the contribution of the Defence Research Board, plus all aspects of defence and medical research, has been one of the outstanding contributions in Canada?

**Dr. Mackenzie:** Yes, their contributions are more allied to civil activities than in many other countries. I think this is true and has been a tradition in Canada. As I have said, the medical research in war was first class. The medical groups have an advantage in moving back and forth between civilian and military activities, for actually their main objectives—the health and physical and mental well-being of others—do not change.

**Senator Sullivan:** I am intimately connected with it. That is why I made that statement.