

to keep clearly in mind this concept of the continuity from research to use, because they are the only group who are likely to play a part in the forging of every link in the chain.

During the war, all nations were forced to draw on existing scientific knowledge and to shift the emphasis toward the later links in this chain. In Canada, because we are a young country, we have tended to do this even in times of peace. We are no longer under such great pressure to apply existing knowledge as we were during the war or in pioneering days, so we must plan for an increasing amount of relatively fundamental research in the science and engineering faculties of our universities and in industry. This emphasis on the search for new ideas is equally important in planning our Defence Research policy.

Small Organization

Canada is not a war-like nation and Canadians will not tolerate a policy which keeps a large part of the nation continually involved in preparations for war. Our primary aim in Defence Research must therefore be to set up a small organization which will make available to the Armed Forces in peacetime, all the scientific resources of Canada and of other friendly nations, and which will be prepared to undertake the rapid mobilization of all these resources should war occur. In addition we will operate research establishments dealing with those aspects of military research which have little direct commercial application. This includes most applied research on weapons, explosives and military equipment. Although this function is of secondary importance, it may well use more of our peacetime Defence Research budget than does the first function because the facilities needed for research of this kind are relatively costly.

In carrying out our primary function, we will work in the closest collaboration with the Services on the one hand, and the National Research Council, the universities and industry on the other hand. The universities are the main reservoir of scientific knowledge and the source of our trained scientists. They are the foundation upon which all the other research groups of the nation are built. The relationship of Defence Research with industry must be equally close, not only because of the importance of the results of research in industry, but also because our entire research policy will be to some extent conditioned by the capabilities of industry.

Efforts To Be Limited

The choice of actual fields for research will be determined by the following factors: Canada is a relatively small country and our research resources are not unlimited. We cannot do first class research in all fields that are of interest to the Armed Forces. Our efforts must therefore be limited to a relatively small number of fields in which we can hope to do work of really first rate quality. Second rate research is not worth doing at all since its results will always be replaced by those of better work done elsewhere. Canada can safely follow such a policy of specialization because it has no aggressive intentions, and it is impossible to conceive of Canada fighting except as a member of a larger group of nations.

Having accepted the fact that Canada can safely limit her military research to a few selected fields, it follows that the fields chosen should be ones in which Canada has some important or unique resources. The resources that must be considered in this connection include the research background in our universities, skilled manpower, special industrial capabilities, distinctive experimental establishments, important natural resources and unusual features of climate and geography.

The most unusual resource of all is an original idea, and the greatest emphasis must be put on exploiting new ideas originating in Canada.