

The requirements on the metallurgical side are much greater. For example, in making castings for guns and for ship accessories, the physical characteristics and the close limits of chemical analysis cannot be compared with anything we had to cope with in the last War. As you know, on a naval ship, space is at a premium. As a result, we have to have electrical equipment with higher operating characteristics in much less space than is taken up by equipment of normal commercial design. On the precision side, the story is the same. In the last War, we were working with dimensional tolerances of a thousandth of an inch; today they are ten times more exacting.

I could go on for some time giving further examples of some of the complexities in the present programme that have created difficulties not only from the manufacturer's point of view but from the Department's standpoint as well. There have been many tough jobs due to the fact that we are making more complex armament and because we are making much of it for the first time in Canada. Added to these technical problems is the fact that portions of the equipment we are making today continue under development in the country where the design originated and that means that engineering changes are coming forward all the time.

As a result, the technical burden placed on industry has been great and this in turn has created a personal problem. It takes high-grade administrative staff and skilled workers to carry out many of our defence contracts and sub-contracts. In a number of cases, defence work is only about 20 per cent of the firm's total business, and yet it takes 50 per cent of the technical staff to handle it. From a profit point of view this is serious, because there is no doubt but that it tends to raise costs on commercial business.

Time after time, when we have looked into reasons for delay, we have come right up against the problem of inadequate technical personnel. We find it in the construction industry as well as in shipbuilding; we find it in guns as well as in electronics - in fact it is right through the piece. In discussing it in the Department, it seems to be an industry-wide problem. It is one that requires immediate attention and one that only industry can solve.

If Canada hasn't enough qualified technical personnel to carry out a defence programme of this size, what would we be up against in the event that we were called upon for an all-out effort? It seems to me that this question has even wider ramifications if we have confidence in Canada's continuing prosperity. Are we going to have enough trained people to back up all the capital investment we are making in this country?

I leave the thought with you as a project which might be studied by C.I.P.A. I can assure you that, if we in the Department can be of any assistance in this connection, you have only to call on us.

Getting back to this matter of a certain indifference towards defence work that we are finding in industry, I want to point out again that this by no means applies to industry as a whole. However, it is true of certain firms. I am sure that we all embarked on this defence effort with the earnest desire to make a worthwhile contribution to the defence of this country and to the defence of the free world. I know that the delays and complexities have been discouraging. Nevertheless, the necessity to complete the programme as soon as possible is still there. We have undertaken certain commitments and it is up to us