

service, but in what has happened in Canada since the war - in the realization that what we did in war was not ephemeral but has brought about a permanent, - a revolutionary - change in the scientific structure of this country.

The many tributes being paid everywhere to Canada these days are almost embarrassing - her growth, her potential, her sanity and efficiency in public affairs, her prospects.

We are familiar with the statistics: since 1939 our population has increased 30 per cent, - our trade has increased, - vast new resources have been opened up, - our gross natural product has increased 4 times, - our government revenues have risen 8-fold, but our research expenditures are 16 times greater than in 1939.

Statistics alone, however, are barren. The scientific expenditures have increased twice as much as other comparable expenditures might mean anything, - even waste, - but that is not true.

What is true is that our science has increased in effectiveness and quality - but of greater importance, our Governments and the people have recognized that effective national science is one of the essential activities on which the strength and well-being of a modern nation depends, in peace as well as in war.

It is this public recognition which is responsible for the real scientific revolution of the past 15 years, - and it has been a revolution, and of this I wish to say a few words.

Let me, by way of illustration, recall one well-known story which I think contains all the essential elements.

I go back to one of the real crises in World War I.

This had to do with one of the many critical shortages in chemicals.

You will recall the ammunition position in Flanders in the early days. The demands for cordite could not be met. The situation was desperate. One of the most urgently needed chemicals was acetone - the former sources from hardwood and fusel oil were completely inadequate.

In the frantic search for new sources Lloyd George heard of the work of a quiet, modest research professor of chemistry at Manchester, who in his attempts to make butadiene had found a fermentation method of making butyl alcohol but unfortunately as the professor saw it, there was also produced acetone in quantity.

The Professor's failure was great news for Lloyd George who wanted acetone above all things - he immediately got in touch with the Professor.

Pilot plant studies were initiated and soon plants were being built in the United Kingdom and Canada and later in the United States; the most successful at the time was that at the Gooderham Works in Toronto. One crisis was met and the war went on.