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We are among the largest per capita consumers of antifreeze, tetraethyl lead and carbon black in the world, yet prior to 1946 we imported all our carbon black, tetraethyl and antifreeze compounds. This program came about as a result of intelligent planning and encouragement that was given by the government and those who offered advice at that time. It is also equally significant that these products which I have mentioned, polyethylene, carbon black, antifreeze, cellulose, potash products and sulphur are now being produced in British Columbia, Alberta, Saskatchewan and Quebec. There are great possibilities in these four provinces in spite of transportation difficulties. It might be worth while to point out that, though some of these plants are located thousands of miles from southwestern Ontario most of the products that they now produce on a commercial scale are made by companies whose interest in Canada and in establishing secondary manufacturing industry in this country was stimulated by what happened in the Sarnia development, and many of them describe themselves as satellites of the Polymer Corporation.

I would like to say something more about this crown corporation. I have not been associated with it for 12 years, so I can speak quite freely. It is an outstanding example of the part that government can play in creating more secondary manufacturing industry in this country. I am a firm believer in the free enterprise system. Wherever it is reasonably possible to do so, private enterprise should be given the opportunity to develop our resources and build and operate the mills and factories where our raw materials are converted into finished products. But at times-and I know this from sad experience-a project is too big for private corporations to take the risk and then, if properly advised, the government must step in. When you try to get several competitive firms together, as was the case in Sarnia, to work in a common enterprise, an integrated enterprise, to use common facilities, common utilities, governments occasionally have to take the initiative and get into business themselves.

Polymer is surrounded by ten major private corporations, many of which, as I have said, are satellites and are an integrated part of the operation that centres around Polymer. Polymer is a very good example of the kind of action governments sometimes have to take. I think the two outstanding examples in this country are Trans-Canada Air Lines and Polymer. Incidentally, Mr. Chairman, but not without great significance, they are good examples of what Liberal governments have

[Mr. Nicholson.]

done in the past and are prepared to do in the future if circumstances warrant.

Mr. Chairman, I should like to move on to another field. We have in Canada all the raw materials that are needed for a really great chemical industry, a great secondary manufacturing industry. We have oil, gas, coal, potash, gypsum and other mineral supplies. We have enormous beds of salt and salt brine. What many people forget and what intrigues many people who are interested in establishing business in this country is that we have rivers and lakes in many parts of this country that are capable of supplying the enormous quantities of clear water that are needed in large scale chemical operations. The committee would be surprised to know that one of the reasons that entered into the choice of Sarnia as the site of this wartime operation was the water supply that was available, because even in those days this operation used more water in the course of a day than the whole of the cities of Montreal or Toronto. Those are assets that, when you get into large scale secondary industry, should not be overlooked.

Mr. Herridge: That is one reason why we must save the Columbia.

Mr. Nicholson: I agree with the hon. member on that. There is merit in saying that the waters of the Columbia must be safeguarded. But in spite of this vast variety of richness and resources the growth of the chemical industry in Canada has slowed down badly in the last few years. The industry has not grown in the way it did between 1941 and 1956. But more disturbing than the lack of growth, Mr. Chairman, are trends in industry that are easily discernible to anyone who takes the trouble to do some research. For instance, in the United States today over 3,000 petrochemicals are produced commercially and that number is increasing at the rate of roughly 10 per cent per annum. But in Canada, in spite of the enormous growth to which I have referred, we produce only 50 different petrochemicals. The contrast is vivid. Again, unfortunately, there has never been any large scale development of the secondary coal tar chemical industry in Canada. Primary distillates such as pitch, tar and creosote and a few more partially refined products such as phenol have been made, but only in rare cases have these primary aromatics been synthesized into dyes, drugs or other chemicals.

Fundamentally, the problem of the chemical industry is one of size and ability to keep pace with the rapidly increasing rate of technological development. In many cases an economical production unit is oversized for the Canadian market, and where technical