

That was \$50,000 a year—

will be able to do so by getting prior agreement from the Minister of Industry that the research and development proposed, if successful, would be likely to benefit Canada.

I come back later to the nationalistic implications of that statement, but I think it illustrates an approach that is not conducive to successful stimulation of our industrial R and D effort.

First of all, a \$50,000 a year limit is pretty small when a young Ph.D. just out of college earns about \$12,000 a year these days. But worse than that is the requirement for prior approval of the development proposed. With the best will in the world, and with the most competent federal government officers possible being involved, how can they second guess the men in industry, who have equal if not better scientific training and whose very jobs depend on running a successful R and D effort for their companies?

This is not quite like saying that what is good for General Motors is good for the United States. We are here talking about a very specialized field, assessing the probable success of a proposed research program. I know of no better criterion by which it should be judged by the government than whether or not some taxpayer is prepared to put his own money into the program and to take his government assistance in the form of income tax rebates, that is only if he is successful, not necessarily in that particular project, but in his overall efforts.

In the recommendations made by the committee of the Economic Council, to which I referred earlier we were most specific in urging that government assistance for industrial R and D take the form of tax allowances, with appropriate provisions for carry forward to future years of research costs made in unprofitable years. We disagreed with the plan of grants-in-aid for prior approved projects as a general form of incentive. Obviously there is room for a system of grants for particular projects, but this should be supplemental to the main incentive scheme.

It seems to me that the chance of any company engaging in purely frivolous research is very small indeed. A great deal of research effort, of course, comes to a dead end and can by certain criteria, be regarded as wasted. But that is the way the game is played.

Successful research needs management interest and support. This means that, first,

the research projects must be related to the needs of the business; second, in order to recruit and retain the necessary talent the research projects must be scientifically challenging; and, third, support funds must be available on a continuing basis. These objectives can be met most effectively, and at the least overall cost to the taxpayer, by business income tax incentives. Such incentives are open to all and are simple to administer. They can make a significant contribution to the cost of research but still demand a financial commitment by those companies that elect to qualify. In other words, I believe that all general efforts by the Government to stimulate activity in this field should be by improving the climate, rather than addressing the particular projects that may be under way at any given point in time.

5. The International Aspects of Research and the International Companies:

One of the really vital developments of this century, thinking in terms of world trade and the general economic environment, is the growth of what are loosely described as international companies and the part they play in world trade and economic growth. No useful statistics are available that I know of to measure their influence, but one can make a few "guess-estimates". I saw a calculation the other day that impressed me. If one takes the value of United States direct investments abroad, currently estimated at about \$55 billion, one can assume that this generates a sales volume of, say, double that amount, or \$110 billion. Comparable figures for the rest of the free world might well bring that figure to \$200 billion a year. That in turn compares with a Gross National Product for the free world of \$1,750 billion. Out of \$1,750 billion, \$200 billion—while important—is perhaps not so startling a comparison but, if one projects those figures forward for, say, 20 years and assumes a 4 per cent annual growth rate for national GNP's but a 10 per cent growth rate for the international companies—and 4 per cent and 10 per cent respectively are not out of line with recent experience—one gets to the point in 1987 where one-third of the free world's GNP will derive from the international companies. I do not want to hang too much argument on that arithmetic but I do think it illustrates that the international companies are beyond question a force to be reckoned with in any future planning.

Now, these companies are in large measure science-based companies—and their very size