

*Science and Technology*

(b) the organization of the scientific establishment in the public service of Canada.

I could go on, but I want Your Honour especially to note this statement:

... the optimum investment in, and application of science and technology in pursuit of national objectives.

My concern is that not too many Canadians are sure what our national objectives are. I think the government is extremely unsure of what our national objectives should be, what are desirable objectives, how to enunciate them and how to strive toward them as a nation. I think this is one of the great ailments of our time as Canadians. We do not have clearly defined national objectives in this field or in any others; and if we do not have national objectives, it is very hard to define a policy which is meaningful.

As previous speakers have said, it is important that we direct our science and technology in such a direction that they give us economic advantage in this very highly competitive world. That goes almost without saying, and it is pretty obvious. Also, we have a responsibility to do scientific research which hopefully may have the effect of contributing in a general way to the benefit of mankind. Then, of course, we have an obligation to support pure science, so that we will have a scientific capability which would allow us effectively to pursue science in particular fields, especially in applied science, in a direct effort to solve some problem known in advance. But we should never downgrade the importance of pure science, science for its own sake or the search for scientific knowledge. There is a great field which as Canadians we have neglected. Some of our national concern should be the quality of life and the evolution and development of the same. We should be concerned about what effect is being produced by our national policies, or lack of them, on our people as a nation. What effects are they having on our behaviour in a general scientific sense? We know very little about this. This is a field in which there is a great activity in other countries, and which as far as I know is being entirely neglected in Canada.

Then there is the question of research in the field of nutrition. I have the feeling that sometimes we know more about proper nutrition for animals than we do about proper nutrition for human beings. There is much being learned about the very important effects of such things as trace elements in minute quantities on the development not only of plants but on the development or health of the animals which feed on them. For example, in certain areas of Canada there is very little selenium in the soil. Bountiful crops grow on the land yet the ruminants, sheep and cows, that pasture on it, as a result of a deficiency of necessary selenium, become paralysed and die. We have done little research on the effects of these trace elements or the effect of food produced from plants and animals that are deficient in them.

● (1750)

I have some questions about research into human behaviour, Mr. Speaker, and I should like to quote from an article entitled "Biology, Society and the Individual" by René Dubos which appears in the same publication. At page 39, Mr. Dubos says:

[Mr. MacLean.]

I should like now to direct attention to the obvious fact—and yet not sufficiently obvious to have inspired as much biological study as it deserves—that the total environment affects individuality through the influences it exerts on the organism during the crucial phases of development, including the intrauterine phase. These early influences affect lastingly and often irreversibly practically all anatomical, physiological, and behavioural characteristics throughout the whole life span.

We should ask ourselves as a nation how we can congratulate ourselves on our urbanization, technical developments, increased efficiency in transportation and matters of that sort when we are raising more criminals on a percentage basis than ever before. Why do we have more alcoholics, more drug addicts more urban guerrillas? Why are so many of our people insecure and insane or emotionally unstable? Why, for example, do we have such phenomena, in what is supposed to be a civilized society, as battered children? These are the things we should be concerned about, Mr. Speaker.

Mr. Dubos later in his article says:

The conditioning of early life with regard to almost any physiological activity is much more lasting than anyone had anticipated. For example, it can be demonstrated with rats that animals used to having a diet low in protein during the first few weeks of their lives tend to continue eating this diet even when a better one is made available to them later in life.

Still later in the article the author says:

It appears, in summary, that whether we look at the biological or the cultural aspects of development, the body and the mind are simultaneously being affected by the physical, chemical and mental stimuli that impinge on the organism.

A further paragraph says:

An impoverished environment results almost inevitably in biological and mental deficiency. On the other hand, the latent potentialities of human beings have a better chance to emerge in a living form when the social environment is sufficiently diversified to provide a variety of stimulating experience, especially for the young. This variety of experience need not depend on economic position; it is very likely that the farm in the past did provide such a variety of experience through the exposure of the child to the events of nature and the varied activities of the farm.

The article says later:

Creating diversified environments may result in some loss of efficiency but in my opinion is vastly more important than efficiency because it is essential for the germination of the seeds dormant in man's nature.

The bureaucracy is full of efficiency experts and theorists who are deciding how Canadians will live their lives in the future—the family farm is not as economic as some great industrialized farm such as one might find in Russia—without giving any consideration to the social effects of such change. We have the Ministry of Urban Affairs designing environments without thinking ahead to the longer term effects on people.

To quote again from this article, Mr. Speaker:

The child is programmed by the conditions of intrauterine and post-natal life over which he has no control. He can never change his past and all manifestations of his free will during adult life are thus conditioned by this early programming.

That is a scary statement, Mr. Speaker, but a true one. On the one hand we have discarded the old adage of a kind of instinctive knowledge; for example, as the twig is bent, so is the tree inclined. We have taken the view that if a child is fed he is going to grow up and have a social conscience. Now science is finding that the way children