

I am persuaded, particularly by our experience in Edmonton, that the concept of a centre of excellence is what counts. Located in an area where there is a reasonably sized scientific community, a comparatively small research and development activity can be mounted, provided it has at its head men good enough to attract others and occasionally to bring distinguished scientists to visit, to lecture and, possibly, to participate in its programs. It does not have to be large but, if the quality is there, there is not too much difficulty in recruiting and holding staff.

Again and again one comes back to the same thing: Good research needs an appropriate climate, and I believe that all general efforts by the Government to stimulate activity in this field should be toward improving the climate, rather than addressing the particular projects that may be under way at any given point of time.

May I sum up the six points I have tried to make by saying that:

1. Research is only a small part of the innovation process which is our real objective.
2. There is a most pressing need to develop priorities.
3. Industrial research merits a general incentive plan.
4. By its nature, industrial research is dependent on decentralized decision-making. Tax incentives provide the most effective scheme for encouraging such decentralized decision-making.
5. We should accept and not be afraid of the international implications of research.
6. Concentration on centres of excellence is our best defence against the brain drain.

The Chairman: Thank you very much Mr. Mackenzie. It is time now for a recess; we shall reconvene in ten minutes. (*Short recess*)

(*Upon resuming*)

The Chairman: May we come to order? Senator Grosart.

Senator Grosart: Mr. Mackenzie, this is a most interesting paper you have put before us. I tried to get a copy of the economic report to which you referred, in order to see what your committee did recommend. I am sorry to say that our Parliamentary Library does not seem to have a copy of the Report of the Economic Committee.

Mr. Mackenzie: I can arrange for that.

Senator Grosart: There may be one which somebody else has borrowed. The information I had was that one was not available. In any event, looking over your paper, Mr. Mackenzie, I realize that you are dealing largely with industrial research, which, as you know better than I, is not the whole field of research.

The Chairman: By the way, Senator Grosart, before you go on, I think it would be a good idea if a copy of that report could be circulated to all members of the committee.

Mr. Mackenzie: That can be very easily arranged.

Senator Grosart: Mr. Mackenzie, could you indicate to us to what extent the conclusions you have reached about the method of Government allotment of research funds will apply in the larger, sociological field, for example, to such things as research into air and water pollution?

Mr. Mackenzie: This, it seems to me, is the sort of job the Science Council should address itself to. These areas are particularly suitable for research being done in Government organizations, such as the National Research Council, the Defence Research Board and so on, and in universities by sponsored projects and by other research establishments, as distinct from the fields that should be handled in the industrial sector.

I have the feeling that in a great many of these major areas, such as air pollution and water pollution, some of the basic work has to be done either in Government or, for example, by sponsored projects in universities as distinct from industrial research. On the other hand, there are fields in which the Government has concerned itself that might more appropriately be the concern of industry. I am not competent to really express an opinion, but I believe the National Research Council for some time did quite extensive research into building materials that would be used for housing in the north and so on. There may be some special aspects of that, but a lot of the building material research, it seems to me, could be done just as well in industry as in a Government department.

On the other hand, if you are addressing yourself to such problems as the water pollution in Lake Erie, some of the basic research has to be done by Government sponsored projects as distinct from industry.