

Our objective must be to obtain as good an inventory as possible of both the known resources and the potential resources of our North, and we are working very hard towards this objective. It is fundamental to development and it leads on to my next point – the importance of research.

RESEARCH IN THE NORTH

Certainly, one of the most important factors that has led to the development of the Soviet North, possibly the most important factor of all, has been the Soviet attitude towards research. From the first they have recognized the part that research must play in the North. The government-controlled Arctic and Antarctic Institute in Leningrad, the network of scientific stations in the North, the scientific institutes throughout Siberia, the floating stations on the ice of the Arctic Ocean, and now the comprehensive Soviet research programme in the Antarctic, provide impressive evidence of the importance and priority they give to polar science. The results of research sometimes appear in startling advances, like the *Sputniks*; more often they appear as many small steps rather than one big one. Radio communications become more reliable, charts more accurate, ice reconnaissance more useful. There can be no doubt that the Soviets have made very great scientific progress in the North and that this is playing a major part in their northern development.

Conditions in the Canadian North are, on the whole, more difficult and we have harder problems to solve. Our main hope of achieving substantial reductions in the cost of northern operations lies in intense and continued research. At the best, research can lead to completely new principles and techniques, which might eliminate the disadvantages now inherent in northern operations. We have only to think of the implications of nuclear-powered cargo-carrying submarines operating under the ice, and the applications of the hovercraft, which can move over water, level land, and ice, and operate during break-up and freeze-up, as well as in summer and winter, to realize something of the new horizons that are coming into view. In any event the data resulting from research will allow planning to be carried out more thoroughly, and without which a particularly heavy penalty is always paid in the North. There is no more expensive place to make mistakes.

PROBLEMS OF CONSTRUCTION

You will be particularly interested in construction. Our delegation noticed that Soviet heavy construction seems to rely – in Siberia – very much on *available* materials such as concrete, bricks and wood, to a far greater extent than in Canada, where we can enjoy the advantage of a wide range of choice of secondary materials. Consequently, the Soviet engineers and builders seemed to be concerned very much with the high costs of construction. Construction costs in capitalist countries seem to have been kept down by the use of less expensive secondary materials mass-produced and by the element of competitiveness. In Siberia, the accent seems to be on developing hydro-electric power for the development of wood, steel,

aluminum, chemical and other primary products. The next step presumably is to develop communications – road and rail transport, as well as means of transporting electrical energy to European Russia.

SHARING OF KNOWLEDGE

...I was impressed with the efforts this gigantic nation is making to bring itself into the economic twentieth century. Their dedication and energy is tremendous and so are their achievements. The Soviet experts who visited Canada later were in turn impressed with the achievements we have made in this country. I think some of you met them at that time. They saw the truly spectacular hydro projects at Manicouagan and Portage Mountain, a huge pulp mill at Prince George, the Pine Point mine development, gold mining at Yellowknife, silver Keno in the Yukon, and many construction projects from Montreal, Toronto, Regina, Calgary and Vancouver. I think the principal lesson we have learned from these exchange visits is the fact that our two countries with similar and dissimilar problems in our Northland can expect only mutual benefits from sharing our knowledge, experience and achievements. In some respects, they are ahead of us, and in others we have things to teach them but further exchanges of scientists and other northern specialists between the two principal "northern" countries in the world will make a real contribution to our efforts to come to grips with the North. Exchanges of this kind will now proceed from the very solid base that has been laid by the two visits this summer.

CANADA TURNS NORTH

...As indicated earlier, it is only recently that we Canadians have turned our faces and our minds to the North. We have now begun to write the second chapter in the development of our nation following on that period after Confederation when the prime objective was understandably to link together our different regions from East to West. The economy of the North is still principally sustained by government expenditures. Federal Government departments alone spend more than \$10 million annually on wages and salaries for their employees in the North. Territorial and municipal governments help to swell this total. The *per capita* income of the Northwest Territories estimated at about \$833 in 1961 is still below the national average. Progress is being made, however, in the field of mining which is and will probably continue to be for some time the principal commercial activity in the north. The value of mineral production fell from a peak of \$27 million in 1960 to \$15.4 million in 1963. The start of the Pine Point project, however, has changed that picture as it is expected that its production alone will exceed \$20 million a year. We recognize the responsibility of the Government in the economic development of the North and our objective is to create a climate within which private enterprise will come forward to participate.

You may have heard of the Government's recently announced new northern roads policy. Under this programme, the Federal Government will invest an average of \$10 million over the next ten years to increase and to improve this network in the Yukon