

## THE FUTURE

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Two fundamental premises I think can be accepted at the outset. First, if the Institute fulfils a useful and needed role in contributing to man's knowledge and understanding of the polar regions, and does it through bold, perceptive, and imaginative leadership, its future is secure. The second premise is that the future of the Institute itself is indisputably locked to the future of the polar regions.

With these in mind let us consider briefly, by way of introduction, the founding of the Institute and the circumstances surrounding it. A question may be posed. Would the same kind of Institute be founded today as was founded in 1944. I think the answer would be no. In 1944 the Institute was founded to meet specific needs that were very real and pressing at that time. It is important to note that, as outlined in a previous chapter, the needs in Canada were quite different from those in the United States. In the United States there was in simple terms a desire to preserve for future use the knowledge and information that had been assembled by the U.S. Army Air Force's Arctic, Desert and Tropic Information Center, since it was almost taken for granted that this activity would just fade away in the rapid demobilization which could be expected at the end of World War II. In Canada, however, action stemmed from a comparatively small group of dedicated citizens who recognized the importance of the North to Canada and desired to cultivate more broadly a national concern and awareness of this.

Curiously enough the common cause of World War II brought together those individuals from the United States and Canada who were then most intimately concerned with these needs and many of whom shared a common background of experience and interest in the North. Thus, at War's end a binational organization was founded to meet the differing needs of the two countries with responsibilities vested in the Board of Governors with joint Canadian and United States membership. The fundamental basis was a common desire to continue and foster this existing interest in the North, which had been brought into focus by wartime circumstances.

To meet these differing needs the Institute was constituted to provide for two general areas of endeavour. The normal mission of a scientific organization to acquire and preserve knowledge was provided for and implemented initially through a grant-in-aid program, the scientific journal *Arctic*, the establishment of the Institute's library, and the publication of *Arctic Bibliography*. But in order to create a more general interest and awareness of the North and its emerging significance, an Institute Associates

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program was also established. This was later extended by the establishment of a class of Fellows, who are elected by the Institute's Board of Governors in recognition of their contributions to polar research and who participate in Institute affairs through election of a portion of the Institute's governing body.

One must note that at this time, reflecting the need first for basic scientific knowledge of the North which had been emphasized by the military requirements of World War II, the early interest and concern of the Institute was almost exclusively within the natural sciences. As a result the people called upon in the early days of the Institute because of their experience were drawn largely from the ranks of the natural scientists. In perspective it must also be noted that at the time there were few *social scientists* with any interest or experience in the North except for a small group of archeologists and anthropologists.

Now, twenty years later, circumstances are far different from those at the time the Institute was founded. The immediate needs which the Institute was intended to fill are now being met. The over-all importance of the polar regions to the modern world is recognized. A broad national effort in northern study has emerged in Canada with an increased recognition of the economic, social, and political significance of Canada's northern territories and a responsibility therefor. *Prima facie* evidence of the very basic concern for the future is demonstrated in the proposed Centennial Fund for Northern Research in Canada, in which the Arctic Institute can be said to have had the guiding hand. The United States now recognizes equally the significance of the North and additionally has mounted a vast national program of scientific endeavour in the Antarctic. Through these efforts there has been a manifold increase in polar research during the last twenty years, and a whole new generation of "polar scientists" has been trained in the process. The appropriate government agencies have recognized their mission and responsibility through the establishment and support of active programs. A number of universities in both Canada and the United States have developed programs of polar, boreal, or northern research through the interest of individual faculty members or in some cases through the establishment of special institutes. And of perhaps greatest practical importance, new funds and resources have become available to create and support these programs.

Thus there would in fact be far less need today for the type of institute that was conceived in 1944. Correspondingly the Institute of today bears little resemblance to the Institute of twenty years ago. In response to the changing environment it has altered and expanded its scope of activities in directions which never could have been foreseen twenty years ago. The multiplicity of present Institute activities, all of which contribute effectively to a primary objective of increasing man's knowledge and understanding of the polar regions, has been amply covered in a previous chapter, thus little need be said here, but I do think it is important to consider the principal environmental changes that have affected the over-all field of polar research.

In a broad sense changes have been taking place on two fronts, one

technological and the other political (for lack of a better term). The latter refers to the general recognition by government, business, and the scientific community that the polar regions are an integral part of our modern world and that there is a continuing need to further a knowledge and understanding of them, as well as a willingness to devote substantial money and effort to this end. I believe it can be said that to a large degree the *political* changes have made possible the technological changes, which in turn have had a profound effect on the conduct of research. Or perhaps to put it differently, one might say that the technological developments would have taken place irrespective of any requirements in the polar regions, but the *political* climate directed their availability and application to polar work. And insofar as polar research is concerned, these technological changes, in particular the new developments in transportation and communication, have indeed had a profound effect.

It is through modern communications and transportation that the Arctic has become quite easily accessible as distinct from the isolated frontier of early days. To undertake scientific research today, it is no longer necessary to mount at great effort special overwinter expeditions that require extensive logistics and construction of completely new and self-supporting facilities; nor, on the other hand, is the working period limited by the very short summer navigation season. Airfields, bases, settlements, and stations are distributed throughout the North with the necessary supporting facilities. The formerly isolated outposts like Thule, Resolute, Inuvik, and Point Barrow are now in regular communication with points south. The same is almost true in the Antarctic, although there distances and practical logistics still demand a seasonal pattern of operation. Thus we have, in effect, an existing foundation for the projection of polar research programs.

With the technological changes, the nature of polar research itself has changed, as has the character and identity of the polar scientist. The descriptive geographical frontiers have now been defined. Today there is rarely a call for the traditional *expedition* with all disciplines of science represented. The new scientific problems are more rigidly disciplinary. In fact today the term *interdisciplinary* might more accurately refer to different disciplines, but only when they contribute to the solution of a common problem. These new scientific frontiers require more sophisticated application of instruments and techniques. But with modern technology and logistics it has become practical to undertake special and unique projects which could not have been possible heretofore. Another facet of modern polar research is that logistics have added the polar regions regularly to the network of stations for the investigation of planetary problems, and not just through the great single effort of an international polar year. The recent International Geophysical Year brought this into being, and no doubt it will be continued.

Finally, there has been a change in the polar scientist himself. No longer is it necessary for him to be reasonably young, strong, able to drive a dog team, endure hardship, and be a Jack of all trades as was required of the traditional *expedition* member. Now some limited projects can be accom-

plished in very short periods of time. In many cases today's research worker is never far from a heated airplane, vehicle, or building, and his meals often come bounteously from a well-supplied cafeteria rather than as a result of his skill as a hunter or camp cook. Indeed contributions to knowledge of the polar regions can come entirely from the laboratory or library. And in the planetary disciplines, the scientist himself is not identified as a polar scientist, and may never except for brief visits enter the polar regions. In fact, in the natural sciences it might now more properly be said that a scientist is a physicist, a geologist, biologist, etc. whose problem happens for the present to be in the polar regions. Additionally, to deal with the complexities of the modern research programs, there has arisen a new and important role for administrators in polar affairs.

All this is to many a cause for nostalgia that the days of the old *expeditions* and pioneering of the polar regions are fast passing, with their associations of comradeship, team work, and sometimes common suffering. The contributions of such expeditions to knowledge of the polar regions will always hold an important place in polar history, as indeed these laid the very foundations for our present knowledge and capabilities. But there is no reason why we cannot explore with equal enthusiasm the new possibilities we now have. The scientific frontier is yet before us and it is just as exciting as the *geographic* frontier of earlier days.

I think we can safely say that this frontier will always be before us, whether in the polar regions or elsewhere. It may be that from time to time there will be certain revaluations as to significance and priority by the funding agencies and also that there will from time to time arise a compelling need for certain specific new knowledge. But as the polar regions become increasingly a recognized and necessary part of the modern world, one can with some measure of confidence predict that research and the need for it will continuously increase. One might further predict that in some instances the nature of research may change, and in specific cases be channeled into all-embracing and specific projects. In the Arctic, for instance, *Project Chariot*, the scheme to excavate a harbour in northwestern Alaska by nuclear power, resulted in vast and comprehensive research, even though its over-all objective was not achieved. If one dares to think of such schemes as the Rampart Dam, the Bering Strait Dam, the development of arctic oases or cities through nuclear means, or the alteration of ice covers or climate, it is not difficult to imagine the associated research programs, comprehensive in nature, in both the natural sciences and the social sciences that will be required for the proper assessment of these schemes. Even from a more immediate and practical viewpoint one can scarcely avoid seeing, in the worldwide picture, the role of the polar regions and specifically the North in such current matters as water resources, power resources, economic resources, and even food and space resources for our expanding populations, together with an urgent need for informed planning and conservation in their development.

The discussion above has been directed largely to the natural sciences;

but in the social sciences the changes of the past twenty years have also had a profound effect, which may emerge to even greater importance over the next twenty years.

As already suggested, the Arctic may today be looked upon as a potential crossroads among northern nations rather than as an isolated frontier of civilization. It is to a greater extent becoming geographically, politically, economically, and socially a concern to these nations, individually and collectively. Communications and transportation have forever condemned the old ways of isolation. The days of the nomadic wanderings and the interim period of governmental wards for native peoples is fast passing. Populations, both native and non-native are increasing and may be expected to continue to do so. Even the distinction between them is fast disappearing. We note that in Greenland the last census of *Eskimo* population identified as such was made in 1951. In varying degrees and forms, the responsible governments are genuinely concerned with their northern territories and peoples. Development of resources has taken place in various countries to varying degrees, and there is little doubt that the future will see an expansion as these resources become fully recognized as an integral part of the total world resources.

All this directs us to view the Arctic, not as a special region, but rather as an integral part of areas to the south. I would propose the term *North*, in order no longer to isolate the Arctic but to give it recognition as an integral part of the northern hemisphere.

The North is a vast virgin region which has to date been little affected by man's occupation. Its role in meeting the need for resources and the expanding world population is a matter for early consideration, and its wise exploitation deserves the most careful and thorough advance consideration and at the outset the institution of sound conservation measures.

Already many new problems have arisen in the northern lands, based on geographical, cultural, ethnic, economic, and political factors and will continue to force their way to the forefront. Problems, heretofore of comparatively little importance and handled by the few resident officials, or ignored, have now become very real. They may include international communications and relations, foreign policies, political organization, law, administration, public health, education, transportation, acculturation, economic development, and conservation. All of these have a bearing both in a circumpolar sense and in their broad relations on the adjacent lands of the northern hemisphere.

Although many of these aspects in the social sciences are in practice appropriately within the jurisdiction of the responsible government agencies, there will be an over-all need for broad, disinterested, and uncommitted academic study. Particularly matters involving international relations and comparative studies on a circumpolar and broadly northern hemisphere basis extend beyond the normal responsibility of individual government agencies. If I should venture to make any single prediction, it would be that in the next twenty years the North will emerge as a challenging frontier

for social science research that will require a fresh, new, and all-embracing approach.

Now what does this mean to the Arctic Institute of North America? From the meagre beginnings of twenty years ago a multiplicity of Institute activities has evolved to meet the needs of the changing environment and without doubt this trend will continue. The Institute therefore should not be looked upon as an organization with fixed and traditional bounds; one of its most important attributes is the ability to adapt to changing circumstances. But response in itself is scarcely enough. The Institute must also provide competent, mature, and forward-looking leadership in projecting the future needs of polar research and the means to meet them.

The Institute is a voluntary, independent, non-profit scientific organization which was founded, and whose dedicated purpose is, to further the knowledge and understanding of the polar regions and their significance to man and society. It does not depend on the current and perhaps passing interest of individuals or changing administrative requirements as may be the case in universities and government agencies. Dedication, continuity, and independence are assured by charter. The Institute has therefore both an inherent responsibility and an opportunity to provide leadership and a continuing point of focus for polar research. The Institute is well organized to do this. First, in the strict area of scientific research, the Institute may act by supporting and undertaking research and by its publications and library activities. Secondly, the Associates' and Fellows' programs offer in a broad sense the opportunity to encourage and give substance to a broad and informed interest in polar affairs. Thirdly, the Institute can provide a continuity of focus for planning, coordination, and liaison in polar study, in both scientific and educational areas. Lastly, without going into detail, I believe the binational aspects of the Institute are of extreme importance and deserve special comment. Although in Canada and the United States interests were initially different, and there are still aspects that are uniquely Canadian or uniquely American, there is a common bond and common cause in the North which was recognized in the wisdom of the Founders at the very outset. It may be pure speculation but in the years ahead, with the foreseeable integration of the polar regions into the modern world, and the emerging importance of broad and circumpolar considerations in the social sciences, I firmly believe that common cause in the North will be greater than ever, and that the opportunity for the Institute to play a useful role in international cooperation and leadership rests on a firm binational basis.

But what is the measure of accomplishment of any organization? A good measure is the quality of its product. What are enduring products? Years hence when one takes measure of the Institute's accomplishments, the factual contributions to knowledge and understanding of the polar regions will loom large, whether they have been through the research undertaken or supported, the publication of results, or the assembly of information in archives and libraries. But perhaps the Institute also has other missions which are more difficult to assess.

In addition to the broad areas of challenge mentioned above one aspect deserves special recognition. In the first twenty years the Institute supported some six hundred applications for research assistance; most of these were from young scholars in the initial stages of their education and research programs. Today, many of them are senior scientists who continue to be immensely concerned with the problems of polar research. Approximately a hundred are pursuing such research in industry, government departments, foundations, or museums; others who have received Institute support are directors of research, professors, heads of departments, in the universities of Australia, Canada, England and Scotland, Denmark, Finland, Norway, Sweden, Japan, and the United States. And there is a compelling and continuing need for another generation of such scientists, as well as a new generation of young men representing a much wider spectrum of skills and interests.

It is a truism to say that any private organization such as the Arctic Institute is only as good as the people of which it is made, and valuable and lasting achievement will be realized only through the bold and dynamic leadership of those entrusted with the responsibility of conducting its affairs. In final analysis, success will be measured not only by the "dollar volume" of research or the size of the organization, but also, and perhaps more importantly, by the quality of the product. Here no compromise can be made. My concluding remark is addressed to those who are the Institute, the Fellows, the Governors, the Associates, and the Staff: "The future of the Arctic Institute of North America is in our hands. Our mission is clear, our opportunity is great."