

Within this program are planned intensive studies of large areas such as landscapes and drainage basins. It is estimated that the cost over 5 years for the development and operation of one such area for research purposes is about \$7.5 million. The program has a goal of six sites in different biomes for a total of \$45 million. Manpower availability may restrict operations to only 2 sites at a time for a total of \$15 million over a 5-year period.

Like the previous two programs this program is endorsed nationally and internationally. A description of the analysis portion only of this program is attached for the record. Dr. Smith of the University of Michigan, the program director, is present and will answer any questions in his area. He has a prepared statement which he will leave for the record.

Program on Peoples of the North Circumpolar Area

This program is based on the broad need for increased understanding of man's adaptive processes.

The evolutionary success of the human species is based on genetic, morphologic, physiologic, and behavioral variation. The processes and mechanisms of human adaptability are of special concern. The term "adaptability" is here used in several senses, including the adaptability of populations and individuals and genetic and phenotypic adaptability.

Human adaptability has multiple bases, with consequences for human survival. However, neither the distribution nor the sources of man's variability have been rigorously measured. The International Biological Program presents a unique opportunity for determining the relative importance of these aspects of variability, and of establishing underlying mechanisms on the basis of closely comparable studies of different groups—groups having contrasting genetic, social, nutritional, and climatic backgrounds.

The range of human populations available for this type of investigation should provide the IBP with possibilities for thoroughly assessing sources of variability. At one extreme are few surviving examples of hunting-gathering and incipient agricultural populations, which represent what were the norms of adaptation until relatively recent times. At the other extreme are diverse industrialized populations.

This study involving scientists of the U.S., Canada, Finland, Norway, Sweden, Denmark and of other countries has not yet been as clearly delineated as the previously described programs. Its goals in general are clearly understood, and like the other programs this also is nationally and internationally endorsed. It proposes to study on a multidisciplinary basis the following characteristics and effects of the peoples of the north polar area :

- genealogy and demography ;
- dermatoglyphics ;
- anthropometry, growth, and development ;
- dentition ;
- blood groups and other genetic markers ;
- serum epidemiology ;
- physiology ;
- nutrition ;
- ecology (general and nutritional) ; and
- behavior and psychology.

The U.S. and Canadian efforts initially will concentrate on three Eskimo populations :

- Alaskan Eskimo populations centered at Wainwright.

- A central or Eastern Eskimo group centered about Igloolik, Pangnirtung (Cumberland Sound) or perhaps the Copper Eskimos about Cambridge Bay.

- Greenland Eskimos including the Polar Eskimo group and extending south along the Greenland coast.

The programs and projects so far described total between \$30 and \$60 million for a five-year program. This by no means represents the total program. Within the next 12 months I think that the new work proposed will total between \$50 and \$75 million. This is a modest amount for achievement of the goals established.

Other specific programs within the U.S./IBP are taking shape. At this time it is too early to describe them or to estimate their costs. They will be related to productivity on the land, in the freshwaters and in the sea ; to the biological processes that influence productivity ; to ways of improving the use and management of our biological resources ; to greater understanding of environmental