

late snow patch area found chiefly beneath north-facing rocky overhangs or slopes. These frequently showed extensive communities dominated almost completely by bryophytes. In some areas, it would appear that snow and ice were retained on these sites throughout the entire season, and in many cases outstanding accumulations of surface detritus were observed. The role that these factors play in these communities warrants further attention.

In addition, a limited number of foliar samples were collected, dried, and returned for analysis. These were collected chiefly from species found in a variety of community and soil types (*Salix arctica*, *Cassiope tetragona*, *Dryas integrifolia*). Analyses will be conducted to determine if relations occur between the principal exchangeable cations of the substrate and amounts of nutrient uptake on various sites.

Phenological observations were also started for the majority of vascular plants.

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<sup>1</sup>R. M. Koerner, 1966. Accumulation on the Devon Island ice cap, Northwest Territories, Canada. *Journal of Glaciology*, 6: 383-92.

<sup>2</sup>W. H. Drury, 1962. *Patterned ground and vegetation on southern Bylot Island, Northwest Territories, Canada*. Cambridge: Gray Herbarium of Harvard University, Contribution No. CXC. 111 pp.

## The Icefield Ranges Research Project 1967

The Icefield Ranges Research Project conducted its seventh field program in the St. Elias Mountains between 15 May and 1 September 1967. Under the broad categories of Earth Sciences and Biological Sciences, studies in 18 disciplines were conducted by more than 38 investigators and their assistants. This figure does not include personnel of the supporting Kluane Lake Activity of the Arctic Institute of North America, nor does it include 8 visiting investigators who took the opportunity to conduct short-term studies or to observe field programs in operation.

Noteworthy in 1967 was the absence of a research program in meteorology and climatology. Weather data however, were collected at 4 stations on a 24-hour basis with the objective of extending the sequence of standard observations at Kluane and at

Divide Station to 7 field seasons, and of providing synoptic data as a service to investigators in the field and to the Forecast Office of the Department of Transport at Whitehorse. The last-mentioned, in return, provided 12-hour forecasts for the benefit of 10 satellite field stations. The 4 weather stations cited were manned by undergraduate students who received an indoctrination in weather station procedure, field observation, and data collection from the DOT Forecast Office in Whitehorse. Since the meteorological program was of a service nature, details concerning it are presumed to fall within the purview of the Kluane Lake Activity.

As in the past, scientific teams were comprised of senior investigators and their assistants, graduate students working towards advanced degrees, and undergraduates assigned to assist field parties. For the fourth year, under a National Science Foundation Research Participation for College Teachers Grant, 6 college teachers took part in IRRP, either as assistants within one or more active programs or as principal investigators in programs which they had themselves initiated.

### EARTH SCIENCES

An intensive study of the internal and external environment of the "Fox" Glacier was begun, in anticipation of the surging of this small ice body in the foreseeable future. Studies leading to an understanding of the mass balance were initiated, and included accumulation, ablation, surface motion, and water discharge. Three-dimensional studies included seismic and gravity profiles and a hot-point drilling program. Conventional and ground stereophotogrammetrical surveying and mapping techniques were applied to the entire glacier surface and to periglacial features. A reconnaissance of the moraine sequences of the "Fox" Valley opened fruitful opportunities for future study. In all, a good beginning was made and it provides an excellent springboard for investigations in 1968 and in later years.

The Steele Glacier continues its advance, though at a rate approximately 50 per cent of that observed in 1966. Ground triangulation in 1967 established a network of control which spanned both the Steele and "Fox" glacier systems and is tied into a formal survey conducted in July by the Canadian Government.

Continuing a program of photo chronology of the Steele Glacier begun in 1935, 15 stations were occupied in 1967 (5 of them more than once) and photo panoramas were exposed.

High oblique aerial coverage of the Steele Glacier, and of the "Fox," was executed on several occasions during the field season by

IRRP. Additionally, high altitude vertical aerial coverage was performed on behalf of the Department of Energy, Mines and Resources by Spartan Air Services for large scale (1:25000 and 1:50000) photo mapping purposes.

Two of 6 rock glaciers instrumented in 1966 were restudied in 1967. Appreciable motion was found to have taken place in both. In one glacier, fabric studies of surface material were made. Lichen measurement and increment boring of trees were taken, and trenches were dug to permit examination of internal structure. Seismic soundings at selected points and a plane table survey on a scale of 1:1000 completed the 1967 program.

A graduate program leading towards a Ph.D. dissertation was begun on the importance of differing environmental factors on the occurrence and development of solifluction lobes.

Appraisal of the potential usefulness of the Scott Polar Research Institute Airborne Radio Echo Sounder to the study—and perhaps mapping—of glaciers of the St. Elias Mountains was begun. Flights over an established seismic profile gave promise of encouraging application, and research will be continued in 1968.

#### BIOLOGICAL SCIENCES

Phytogeographical studies on nunataks and in the alpine zone above the 5,000-foot level, begun in 1965, were continued in 1967. They included plant taxonomy and chromosome cytology coupled with plant community relationships; and were focussed on selected targets within the drainage basins of the Kaskawulsh and Steele glaciers.

Plant exploration at lower elevations was also continued. This comprised the compilation of an accurate check list of plant species, the study of vegetation and its relationship to climate and soil parameters, and studies of distribution of vegetation along transects of the continental slope of the St. Elias Mountains. Attention was directed towards determining the factors which maintain prairies within a spruce forest community. In an initial reconnaissance by an independent investigator, over 360 examples of the fleshy fungi were collected at high and low elevations.

In the localized environment of a small island in Kluane Lake, 3 ecological studies were undertaken. These resulted in the collecting of extensive data on plant communities, animal groups, the depth and nature of soils (especially the accumulation of loess), and the capturing and banding of some 240 migrating birds in their nesting localities. A study of dragonfly population in the Kluane Lake region was begun at 5 stations.

For the third consecutive year, studies were continued on the movement and distribution of small mammals found along the southern margin of Kluane Lake. In 1967, a study was directed towards the microhabitats occupied by several genera of mice known to share a macrohabitat, with emphasis being placed on temperatures and humidity within the nests and related to the ambient environment. A second continuing small mammal study concerned the food habits of the Arctic Ground Squirrel and the effect of the squirrel on vegetation. Both of these studies will be continued for a period of 3 weeks during the winter 1967-68.

*Walter A. Wood*

PROJECT DIRECTOR

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PROJECT SCIENTIST

## Appointment of the Executive Director

Brigadier H. W. Love became Executive Director of the Arctic Institute on 1 January 1968, succeeding Dr. John C. Reed who resigned from the post which he had held since 1 May 1960.

The new Executive Director, who was formerly Director of the Institute's Montreal Office, will now oversee the wide range of activities of both the Montreal and Washington Offices (the New York Office was closed in 1967). He will reside in Montreal, the headquarters of the Arctic Institute.

In announcing the appointment of Brigadier Love, the Chairman of the Board of Governors, Professor Trevor Lloyd, was also pleased to announce that Dr. Reed would remain on the staff of the Institute in Washington, D.C., as a senior adviser.

## Election of Fellows

At the meeting of the Board of Governors on 2 December 1967 the following were elected Fellows of the Institute:

Richard L. Cameron, Ph.D. Assistant Director, Development Division, The Ohio State University Research Foundation, U.S.A.

Horace F. Drury, B.S., A.M., Ph.D. Director, Agricultural Experiment Station, University of Alaska, U.S.A.

Don C. Foote, B.A., M.A., Ph.D. Human Geographer, McGill University, Montreal, Canada.

Horace C. Gardner. North Bay, Canada.

C. Ian Jackson, B.Sc., M.Sc., Ph.D. Geographer, London School of Economics and Political Science, England.