Arctic Botanical Research

UNTIL recently our knowledge concerning plants of the Alaskan Arctic has been based chiefly on observations and collections made along or near the sea coast. Opportunities to improve this situation occurred in 1946, when the U. S. Navy initiated a search for petroleum in Arctic Alaska, and in 1947 when the Office of Naval Research sponsored an Arctic Research Laboratory at Point Barrow, at latitude 71° 20′ N. This laboratory was operated first under a contract between ONR and Swarthmore College, and since July 1, 1949, between ONR and The Johns Hopkins University. Basic research that can be done only, or most effectively, within the Arctic has been emphasized in the programs pursued at Point Barrow.

The teams engaged in research at the Arctic Research Laboratory are employed by their own institutions to perform the investigations. The financial and logistic support at Point Barrow is furnished through separate contracts between the respective home institutions and ONR. Some investigators have been supported by grants from the Arctic Institute of North America, but they have drawn logistic support from the ONR through ARL.

Among the teams and individuals engaged at Point Barrow have been a number of botanists whose research has carried them into the interior or has permitted them to study intensively the native plants and the ecological factors operative there. Their activities have resulted in the accumulation of many thousands of specimens of flowering plants, lichens, mosses, algae, and diatoms. Most of their work has stressed the taxonomic phase of botany, for as yet the flora of the region is imperfectly known, and much must be accomplished taxonomically before the plants can be utilized fully by physiologists, ecologists, geneticists, and biochemists.

Among those who have carried on recent field work, the man who has spent the most time on the tundra and the north slopes of the Brooks Range is Lloyd Spetzman. While a graduate student in botany at the University of Minnesota he spent five summers in the area as an employee of the U. S. Geological Survey. During another summer he was supported by the A.I.N.A. Others interested in flowering plants, who have worked out from the ARL, have been Laurence Irving and P. F. Scholander, Swarthmore; Lyman Benson, Pomona College; Henry J. Thompson, John H. Thomas, Kenton L. Chambers, and Ira L. Wiggins, Stanford University. Field work restricted to special groups has been done by Leonard Freese, Houston University, with diatoms; George Llano, then with the U. S. National Herbarium, with lichens; G. W. Prescott and two assistants, Michigan State College, with algae; W. C. and Dorothy O. Steere, Stanford University, with mosses; C. A. Arnold and two assistants, University of Michigan, with paleobotany. Several members of USGS field parties have made valuable collections and forwarded them to the National Museum or to specialists for study.

Paul D. Voth, University of Chicago, studied the ecology of a liverwort (*Marchantia polymorpha*) near Point Barrow in 1951. Daniel Q. Thompson, University of Missouri, investigated the interrelations between plant cover and lemmings. Dr. Scholander studied the ecology and physiology of certain plants in the Alaskan Arctic, and F. G. Gustafson, University of Michigan, collected and lyophylized material for determining the vitamin content of arctic plants. I. L. Wiggins and his assistants attacked some of the cytotaxonomic and morphological problems associated with arctic plants.

Only a small part of the data obtained has been analyzed and the results published. Several years' work will be required to exploit this potential, even if field work were suspended now. Cessation is not contemplated. On the contrary, continued studies, by five teams of investigators, dealing with flowering plants, bryophytes, algae, and with the relationships of microclimates to arctic plants are planned for the summer of 1952.

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