

Alaska's Glacial History to Be Probed in the Brooks Range Area

COLLEGE—The Brooks separates timber and tundra in Alaska's Arctic. South of the range are meandering rivers and stands of aspen, birch and spruce. Nearly 200 miles north, across the spongy tundra of the North Slope, is the Arctic Ocean.

Twenty-thousand years ago fingers of ice extended as much as 50 miles north and south of the range as Alaska and much of the northern hemisphere were caught fast in the grip of the last ice age.

Reconstructing the overall glacial sequence and subsequent environmental changes from glaciers to forests in Alaska's northern Interior is a task of University of Alaska Geologist Thomas D. Hamilton, one of many geologists working to unravel the problems of the Pleistocene—the epoch in geological time that includes the most recent two million years of earth's history.

"We know less about many aspects of the glacial history of Alaska than turn-of-the-century geologists knew about the Midwest and the effects of the ice age there," Dr. Hamilton said.

He attributes the relative lack of information about the ice age history of the state, and the

Brooks Range in particular, to the fact that only a few score geologists have concentrated on the glacial geology of the remote region, while far more have worked to decipher the glacial sequence in the Midwest and other more accessible glaciated regions.

While some geologists investigating the isolated northernmost mountain chain on the continent have studied and published glacial histories of individual valleys, Dr. Hamilton's prime concern is the overall sequence, something which has never been worked out to geologists' satisfaction.

Pulling out maps showing glacial advances at different times during the Pleistocene in the smaller states, he said, "This is the type of thing geologists need to better understand the geology of the Brooks region."

Dr. Hamilton has worked in the central portion of the range for eight summers, traveling some 5,000 miles—4,000 of them on foot, the remainder via inflatable raft—studying and sampling in an area as large as New York and the New England states combined.

His research has been sponsored by the Arctic Institute of

North America, the Geological Society of America, and the National Science Foundation.

"Today only a few small glaciers dot the Brooks Range," he said, "but the evidence of former glacial advances is present in moraines, in the soil distribution, and along river banks which reveal soils that were deposited thousands of years ago under environmental conditions very different from what we have today."

Logistical difficulties aside, one of Dr. Hamilton's biggest problems is dating his materials.

"The ability to attach dates to glacial advances through the use of radiocarbon or other means is very important to a project such as this," he said, "in order to put environmental changes into their proper perspective as well as to correlate the Brooks sequence with ice age events elsewhere on the continent."

Nonetheless, he believes the end of the project is in sight, though it may take two to three more years before he can reconstruct a glacial and environmental chronology for the Brooks Range.