

ARCTIC INSTITUTE RESEARCH REPORTS

The following reports describe some of the work carried out with the assistance of Arctic Institute grants during the field season of 1949.

Archaeology

Archaeological Reconnaissance in Southern Labrador and Northern Newfoundland

Elmer Harp, Jr., and a student assistant from Dartmouth College, accompanied the *Blue Dolphin* expedition to carry out archaeological work in Newfoundland and Labrador. They planned to study the culture of the Beothuk Indians of Newfoundland, to re-examine the Cape Dorset Eskimo remains first discovered in western Newfoundland by Wintenberg in 1929, and to examine the possibility of cultural relationship between these two early peoples. The Strait of Belle Isle area was chosen for the first summer's work, as it was thought that it might be the bridgehead for the earliest migration to Newfoundland.

The archaeological work in southern Labrador was started while the *Blue Dolphin* was in the Strait of Belle Isle. Early in June, Mr. Harp left the ship at St. Anthony, Newfoundland, and continued westwards round the island by small boat to Corner Brook, where he joined the *Blue Dolphin* on September 1 for the return voyage.

In Labrador, seventeen sites were investigated. Seven in Pinware Bay, three in the vicinity of West St. Modeste, two in L'Anse au Diable, two in L'Anse au Loup, and three in Forteau Bay. The largest sites, which cover a considerable area of ground, are found on the sandy flood plains of rivers and streams which enter the various bays. Other sites appear to be correlated with raised beaches on both sides of the Strait of Belle Isle. Levelling traverses run from present sea-level to determine the elevations of the raised beaches and actual site locations may assist relative dating of the occupations. The old occupation levels in many cases were found in buried turf horizons, from one to three feet below the present ground surface. The material collected in Labrador appears to be of Indian origin;

it includes a wide assortment of large and small points and blades, polished stone axes, adzes and gouges; side-and-end scrapers and utilized flakes; several specimens of ground slate blades, all of which show signs of long or severe weathering; and large chopping tools, knives, and semi-lunars chipped from quartzite. No evidence of the Dorset Eskimo culture was discovered in southern Labrador. The ruins of seven stone dwellings found in Forteau Bay are probably of more recent Eskimo culture.

In Newfoundland, thirteen sites were investigated. Two of these were found on a quick reconnaissance in Hare Bay, on the northeastern coast. The other eleven sites are on the western coast; seven in the area of Riche Point, one on Keppel Island in Hawke Bay, and three in Bonne Bay. Several of these had first been visited by Wintenberg in 1929, but they were rechecked for additional material.

Both in Port au Choix (Riche Point) and Bonne Bay the artifacts obtained seemed similar to those from sites on the Labrador side of the Strait. In adjacent sites Dorset-like material occurred; small snubnosed scrapers; lamellar flakes of flint and quartz, some of them retouched and notched for hafting; small triangular points with concave bases, retouched on one side only; fragments of ground slate blades; steatite vessels; and a few bone implements, although none of the typical Dorset harpoon points was discovered. In one site a series of house pits was detected, and one of them was excavated.

It appears that Port au Choix, and the stretch of coast to the south of it may be a key area for studying the relationship between early Indians and Eskimo.

Biology

Study of vegetation types in Alaska in relation to soil profiles and solifluction

Dr. Herbert C. Hanson studied over 100 stands of vegetation types, chiefly grasslands, in various parts of Alaska during June, July, and August. The botanical composition of the majority of the stands was analyzed by the point-

contact method to secure quantitative data on the extent of cover and the frequency of the species represented in each stand. Trenches were dug to examine the soil profiles, and to obtain data on the pH of the various horizons and the root distribution, particularly the working and maximum depths. Much new information was secured, not only on the nature of these stands, but also on the plant succession, land formation, relation to erosion, and solifluction.

Study of the cryptogams of the Arctic Slope of Alaska

Dr. George Llano reached Point Barrow early in June to study the lichens of the Arctic Slope of Alaska. He had been offered the facilities of the Arctic Research Laboratory at Barrow and made the laboratory his headquarters, travelling by aircraft to different regions. Conditions for immediate fieldwork were most favourable at Wainwright, an Eskimo village on the coast about 100 miles west of Point Barrow. The lichen flora around Wainwright was rather uniform and poor in species. Later work showed that this condition is probably characteristic of the entire, low to slightly rolling, coastal tundra belt. The survey of the Wainwright area was extended by an early thaw which prevented the aircraft landing on the sea ice.

It had been arranged that Dr. Llano, Dr. Neal Weber, entomologist, Dr. Robert Rausch, parasitologist and mammalogist, Mr. Lloyd Spetzman, botanist, and Mr. Vladimir Walters, ichthyologist, should join together for purposes of travel. Dr. Weber and Mr. Spetzman had also received grants from the Arctic Institute.

The next district visited was Anaktuvuk Pass, a broad gateway through the Brooks Range, which drains to both the Colville and to the Yukon River systems. The seasonal migration routes of many animals lie through this pass, which is the traditional hunting ground of the Killik River Eskimo. Several families were camped at the north end of the large springs which pour into Tugulak Lake, where the party made their base. The upland alpine meadows were rich in lichens and flowering plants. The

lower areas were drier with some badly drained areas in which cotton grass predominated. Willows, alders and a rare patch of stunted poplars bordered the lake and river banks. There were abundant signs of mountain sheep and caribou.

On July 20 the party left for Umiat on the Colville River. Here the grass-sedge association predominated except along the ridges, where lichens were more conspicuous.

Other regions investigated included Half Moon Three, the Brower's reindeer ranch south of Point Barrow, Point Barrow, and on the return trip the following islands in the Aleutian Chain: Adak, Great Sitka, Amchitka, Attu, Shemya and Kodiak.

The role of lipids in the adaptation of animals to various climates

Dr. Xavier J. Musacchia and two assistants were given quarters and laboratory facilities at the Arctic Research Laboratory, at Point Barrow, to carry out research on the role of lipids in the adaptation of animals to various climates. The total number of animals under investigation exceeds 150. Particular studies have been made of the following: Sabine gull, loon, jaeger, king eider, arctic owl, bearded seal, ground squirrel, whitefish, sculpin, blackfish, arctic cod, grunion, sea cucumber, sea urchin, and crab.

Study of peripheral circulation in the Eskimo

Under Dr. Malcolm Brown's direction Dr. J. D. Hatcher and Mr. John Page of the Queen's University Medical Expedition to Southampton Island made a preliminary study of skin and muscle temperature and blood flow in the forearm and hand of the Eskimo. Approximately thirty-five determinations of skin, subcutaneous, and muscle temperature were made using thermocouples immediately after the forearm was bared. The forearm blood flow and skin, subcutaneous, and muscle temperature were recorded in the clothed forearm, and in water baths of various temperatures. No significant difference was detected in the response of the Eskimo from that observed in the White man in temperate climates.