Devon Island Research Station 1975

The Arctic Institute field station on the Truelove Lowlands of Devon Island was activated for a brief period during late July and August of this year, largely for the purposes of an inspection of the station buildings and equipment, and the performance of necessary maintenance operations.

Researchers present during the season, and their projects, were:

Dr. Carlyle Jordan and Mr. Robert Merrick University of Guelph, Ontario	Biological fixation of nitrogen in arctic sedge-moss
Dr. G. M. Courtin and Mr. Peter Nosko Laurentian University, Ontario	Water relations of *Carex stans* on Devon Island
Dr. D. Pearson Laurentian University, Ontario	Palaeozoic sedimentary cover

In spite of several days of unusually heavy rain, Dr. Jordan and Mr. Merrick managed to complete almost every phase of their planned experiments in the study of the biological fixation of atmospheric nitrogen. They estimated the fixation rates at several sites — on a mesic meadow, a beach ridge, an intermediate zone and a polar desert site — under aerobic, microaerophilic, light and dark conditions, and with microbial activity stimulated by glucose addition and blocked by a metabolic inhibitor. The biomass activity was determined at each site by carbon dioxide evolution from added glucose. Core samples were removed at two depths from each site and from additional sites on a hydric meadow and on a bog polygon. Other data collected included soil temperatures, pH and oxidation-reduction potential. In addition, Dr. Jordan took the opportunity to visually survey the area in the immediate vicinity of the base camp with a view to the better location of other sites for sampling in the near future. A collection of flowering plants from Devon Island was also made.

Soil cores removed by Dr. Jordan and Mr. Merrick will be examined bacteriologically at the University of Guelph, while the polar desert material will be the subject of part of a study by the University's Department of Land Resource Science. In addition, intact moss blocks from Devon Island have been kept alive in a healthy state at the University, and Mr. Merrick will study the numbers, types and activities of the microorganisms associated with the moss surfaces. Such associated microorganisms, principally the blue-green algae, appear to dominate nitrogen fixation in the arctic ecosystem, and the relationships between their activities and the moss surfaces are of considerable importance.

Dr. Courtin and his assistant made further sample collections to support their earlier studies carried on at Devon Island under the sponsorship of the Canadian Committee of the International Biological Program.

Dr. Pearson was concerned with reconnaissance of the area with a view to possible future programmes of study of geological processes.

Mr. Ward Elcock, camp manager, reported that all buildings were intact, and that intrusions by polar bears had not occurred as in previous years. Maintenance work at the station included tidying-up operations around the station area, the erection of radio antenna masts, and a general inventory.

The Institute acknowledges with thanks the cooperation and assistance of the Polar Continental Shelf Project in making this very short season a successful one.