

PLEISTOCENE GEOLOGY

The Debert Archaeological Project

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An archaeological site that dates from approximately 8635 ± 47 years before Christ has been excavated near Debert, Colchester County, Nova Scotia, by a combined team comprising people from institutions in Canada and the United States. Under a cooperative agreement among the NOVA SCOTIA MUSEUM, the NATIONAL MUSEUM OF CANADA and the R. S. PEABODY FOUNDATION, Andover, Massachusetts, and with assistance, in 1964, of a grant from the NATIONAL SCIENCE FOUNDATION of the United States to the Peabody Foundation, parties spent the summers of 1963 and 1964 excavating more than 4000 stone artifacts from old occupation centers scattered over more than twenty acres. Permission to enter onto Defense property, and to excavate was graciously granted by the DEPARTMENT OF NATIONAL DEFENSE who also rendered important and valued assistance in many other ways. This assistance is gratefully acknowledged.

Because the site was on relatively undisturbed ground it was possible to gather much information regarding the circumstances under which artifacts occurred. The Project was under the direction of DOUGLAS S. BYERS, of the Peabody Foundation. GEORGE F. MacDONALD, of the National Museum of Canada, was Assistant Director and took charge of archaeological excavations. The geological work was divided. In 1963, WILLIAM F. TAKE, Nova Scotia Museum, was field geologist. In 1964, DONALD J. P. SWIFT, DALHOUSIE UNIVERSITY, carried on studies of sediments, while HAROLD W. BORNS, Jr., UNIVERSITY OF MAINE, carried on studies of the Pleistocene features in adjacent parts of the Province, and Take, accompanied by PETER von BITTER, of ACADIA UNIVERSITY, studied outcrops from which chalcedony used for artifacts may have been taken.

Charcoal closely associated with stone artifacts was collected from hearths and was processed by the APPLIED SCIENCE CENTER FOR ARCHAEOLOGY OF THE UNIVERSITY MUSEUM, Philadelphia. ROBERT STUCKENRATH, of that institution, quotes the date cited above as the average of thirteen dates grouped between 850 ± 128 B.C., and 906 ± 225 B.C. Some of the charcoal has been identified by the FOREST PRODUCTS LABORATORY, Madison, Wisconsin, as spruce, with no possibility of identification of species. Other samples have been identified as Gymnospermae.

Pollen in a core taken from a kettle hole near Folly Lake is being studied by DANIEL LIVINGSTONE, DUKE UNIVERSITY.

The site lies on a rolling surface about three miles north of the shore of Minas Basin and some 90 feet above the present high water mark. It is on sandy till, locally blanketed by sand that appears to have been deposited by wind action. This sand is currently

being studied by D. J. P. Swift, Dalhousie University and DAVID KRINSLEY, QUEENS COLLEGE, Flushing, New York.

A part of the occupied area was discovered under land which had never been disturbed by modern man, but a large part of the site had been superficially bulldozed to level the mound-and-pit micro-relief. This disturbance initiated deflation which exposed artifacts recognized by E. S. EATON, at that time stationed at the NOVA SCOTIA AGRICULTURAL COLLEGE, Bible Hill. Eaton's collection is presently housed by MOUNT ST. VINCENT ACADEMY, Halifax. The site was located by a reconnaissance party with the assistance of J. S. ERSKINE, of Wolfville.

Artifacts recovered are characteristic of the Llano Complex. This is a class of paleo-Indian artifacts that occurs from the Atlantic coast to southern Arizona. Better-known implements in this complex include Clovis Fluted Points, often associated with the bones of mammoths in the southwestern part of the United States, and Folsom Fluted Points, often smaller and more delicately made, associated with bones of species of bison now extinct. Industrial tools comprise scrapers, piercers, and knives of remarkably consistent form and execution, together with other tools that may well be specialties of individual sites. The complex appears to be based on early Upper Paleolithic techniques that are widely distributed in Eurasia.

Not the least interesting aspect of the study is the soil which has developed on the site. It was examined by WALTER LYFORD, HARVARD FOREST, Petersham, Massachusetts, and D. B. CANN, RESEARCH DIVISION, DEPARTMENT OF AGRICULTURE, OTTAWA. Extensive disturbance by wind-thrown trees was evident, and this disturbance had in some instance brought artifacts to the surface. Large portions of the site which had escaped deep disturbance of this character were characterized by the occurrence of artifacts and charcoal at a consistent depth below datum. The soil is a sandy podzol characterized by biological and mechanical mixing.

Below the zone of disturbance were features that appear to have been produced by wind action. Because ventifaction has been identified on only a few artifacts it appears likely that the site was not occupied by man until strong wind action had ceased, either as a result of the stabilization of surfaces that formerly supplied sand, or as a result of the slackening of wind speeds.

Borns studies make it clear that the site has not been submerged since deglaciation occurred, and suggest that sea level in Minas Basin and the Bay of Fundy at the time when the site was occupied was at or below its present level. Strandlines in Maine, now being studied by Borns, are of more than casual interest as the nearest paleo-Indian site is at Ipswich. A high strandline in southwestern Maine has previously been identified by Bloom, who dates a regressive stage to 9950 ± 240 B.C.

Further research along several lines will be required before reports are ready for publication.