

PLEISTOCENE GEOLOGY

A Review of Palynological Studies in
Eastern Maritime Canada

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This brief account of 'maritime palynology' consists of three parts; the past, the present, and bibliography. In the late 1920's AUER used pollen analysis while making a survey of peat bogs, as summarized in his reports (Auer, 1930 and 1933). BOWMAN (1931) studied a bog near Matamek River, Quebec, using palynological methods. RADFORTH (1945) reported on the pollen and spores found in a buried peat layer, exposed in the Shipshaw area during construction activities. A more extensive palynological study was carried out by WENNER (1947) in Labrador. In 1953 POTZGER published a report on pollen stratigraphy and included in it a discussion on comparative forest history and paleoclimatology for Gaspé, St. Lawrence Lowland, and the Laurentian Shield. A detailed palynological study, covering all of late- and postglacial time, was made of sediments from Gillis Lake (Cape Breton Island) by LIVINGSTONE and LIVINGSTONE in 1958. In 1960 OGDEN published a report on the problem of recurrence surfaces and pollen stratigraphy, based on his study of a raised bog in Kings County, Nova Scotia. Two pollen diagrams by TERASMAE were incorporated in a report by FRANKEL and CROWL (1961) on the drowned forests along the eastern coast of Prince Edward Island. In 1963 Terasmae published a report on palynological studies of postglacial peat from Avalon Peninsula, Newfoundland. In the same year a brief summary on the correlation of postglacial pollen zones in New Brunswick and Nova Scotia was published by Terasmae.

Beginning in 1954, a palynological investigation of late- and postglacial deposits along the St. John River valley in New Brunswick has been carried out by Terasmae, related to studies of surficial deposits in this region by H.A. LEE of the Geological Survey of Canada. These studies have been extended northward to the Riviere-du-Loup area in recent years. A report is being compiled on results obtained from this investigation.

D.A. LIVINGSTONE of Duke University, North Carolina, has continued his palynological studies in Cape Breton Island, the Nova Scotia mainland, and Gaspé. He has planned to publish a report on these studies in the near future.

R.J. MOTT of the Geological Survey of Canada has completed a palynological study of buried organic deposits (of probably early Wisconsin age) in Cape Breton Island, which were studied and sampled by V.K. PREST of the Geological Survey.

A supporting palynological study is being made of samples submitted from the Louisbourg archaeological project site to Terasmae and Mott at the Pleistocene Palynology Laboratory of the Geological Survey.

The pollen and spore content has been examined by Terasmae and Mott in core samples of submerged organic deposits of post-glacial age collected by the Public Works Department engineers while making site investigations at Pictou Harbour.

Most of these recent palynological studies, supported by radiocarbon dating, have contributed to geochronology and correlation of late-Quaternary deposits, and to paleoecology and paleoclimatology of the time intervals represented by the sediments studied.

The supporting palynological studies have proved their usefulness for the geological, biological, climatological and archaeological investigations. However, it is important to be aware of the limitations of the palynological methods when applied within the framework of other more comprehensive investigations.

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- LIVINGSTONE, D.A., and LIVINGSTONE, B.G.R., 1958, Late-glacial and postglacial vegetation from Gillis Lake in Richmond County, Cape Breton Island, Nova Scotia: Am. Jour. Sci., v. 256, p. 341-359
- OGDEN, J.G., 1960, Recurrence surfaces and pollen stratigraphy of a postglacial raised bog, Kings County, Nova Scotia: Am. Jour. Sci.,

v. 258, p. 341-353

POTZGER, J.E., 1953, Nineteen bogs from southern Quebec: Can. Jour. Botany, v. 31, p. 383-401

RADFORTH, N.W., 1945, Report on the spore and pollen constituents of a peat bed in the Shipshaw area, Quebec: Trans. Roy. Soc. Canada, III Ser., Sect. 5, v. 39, p. 131-142

TERASMAE, J., 1961, Notes on late-Quaternary climatic changes in Canada: Ann. New York Acad. Sci., v. 95, p. 658-675

----- 1963, Three C-14 dated pollen diagrams from Newfoundland, Canada: Advancing Frontiers of Plant Sciences, v. 6, p. 149-162

----- 1963, Problems of pollen zone correlation in southeastern Canada: Grana Palynologica, v. 4, p. 313-318

WENNER, C.G., 1947, Pollen diagrams from Labrador: Geogr. Ann., v. 29, p. 137-374

C.J. CAZEAU, of THE STATE UNIVERSITY OF NEW YORK AT BUFFALO, and graduate students are presently engaged in a systematic quadrangle by quadrangle mapping of surficial Pleistocene sediment types. Two quadrangles have been completed: the Clarence and the Lancaster. Representative samples have also been collected within each quadrangle for later sedimentary analysis.

C.F. HICKOX, Jr., of COLBY COLLEGE, Waterville, Maine, is studying Pleistocene geology in the Annapolis Valley of Nova Scotia, and plans to examine Cape Breton Island for evidence of a former ice cap. His publications include:

HICKOX, C.F., 1959, Formation of ventifacts in a moist, temperate climate: Geol. Soc. America Bull., v. 70, p. 1487-1495

----- 1962, Late Pleistocene ice cap centered on Nova Scotia: Geol. Soc. America. Bull., v. 73, p. 505-510

----- 1962, Pleistocene geology of the central Annapolis Valley, Nova Scotia: Nova Scotia Department of Mines Mem. 5, 36 p.

K. HOOPER of CARLETON UNIVERSITY writes to say that sediments and microfaunas from the Pleistocene (Champlain Sea) of Quebec and New Brunswick are being studied at Carleton.

The following studies are reported by the GEOLOGICAL SURVEY OF CANADA in Paper 65-1, Report of Activities: Field, 1964, published in 1965:

- BLAKE, W., Jr., Surficial geology, Bathurst Island: p. 2
- CROWL, G.H., Prince Edward Island, Pleistocene geology, Rustico West Half (11 L/6 W1/2) map-area: p. 128
- FYLES, J.G., Surficial geology, Western Queen Elizabeth Islands: p. 3-5
- GADD, N.R., Surficial geology, Chaudiere River Valley: p. 115-117
- HOOPEr, K., Post-Wisconsin microfauas and sediments of eastern Canada: p. 146
- MCDONALD, B.C., Surficial geology studies, Richmond-Sherbrooke Area; p. 120
- PREST, V.K., Glacial studies, eastern Canada: p. 152
- TERASMAE, J., Geological Survey Palynological studies; p. 158