



GEOLOGICAL SURVEY
DEPARTMENT OF MINES AND ENERGY
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

CARBON-14 DATE LIST FOR NEWFOUNDLAND AND LABRADOR

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INTRODUCTION

The Carbon-14 geochronology date list of Newfoundland and Labrador provides a complete catalogue of carbon-14 age dates for the province. This compilation can be used by geoscientists for a variety of geological purposes, including studies in relative sea level fluctuations, reconstruction of ice margins, and as a guide for future age-dating work. Readers are encouraged to examine this document for accuracy with regard to dates they are familiar with, and to submit to the authors any other dates for inclusion. To date, 1339 dates are included. This compilation will be updated on a yearly basis as more dates become available.

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Data Presentation

Two tables are presented. The first table is in chronological order, from youngest to oldest (Appendix C), and the second table is ordered by map reference number (Appendix D). The tables contain 15 columns:

Reference Number (1:250, 1:50, #)

A reference number has been assigned to every site location on the map, which comprises of 3 parts. The first is the 1:250,000 map sheet on which the age-date occurs (eg., 2M). The second part is the 1:50,000 map number (eg., 12). The third part is the reference number assigned to each sample. These numbers follow sequentially, beginning at 1 (eg., 2M-12-1). In cases where there is more than one sample at a site each sample shares a common reference number, although they maintain a discrete laboratory number.

Laboratory Number (Lab #)

This represents the number assigned to the sample by the laboratory at which it was dated e.g., GSC-4211. A guide to abbreviations follows:

AA	Arizona Accelerator Facility
Beta	Beta Analytical, Florida
B	Bern, Switzerland
BGS	Brock University, Geological Sciences
CAMS	Center for Accelerator Mass Spectrometry, USA
DAL	Dalhousie University, Halifax
DIC	Dicarb Radioisotope Company, Florida
GAK	Gakushuin University, Japan
GSC	Geological Survey of Canada, Ottawa
GX	Geochron Laboratories, Massachusetts
I	Teledyne Isotopes, New Jersey
L	Lamont, New York
N	Nishina Memorial, Japan
P	Pennsylvania
Q	Godwin Laboratories, Cambridge
S	Saskatchewan Research Council
SI	Smithsonian Institution, Washington
SM	Mobil Oil Corporation, Dallas, USA
St	Stockholm, Sweden
T	Trondheim, Norway
TO	Isotrace Laboratory, University of Toronto
UGa	University of Georgia, USA
UQ	Université de Québec à Montréal
WAT	University of Waterloo
Y	Yale University

Date and Associated Error (Date, Pos, Neg)

The sample date is in years before present (BP). The age range of these dates is from modern to greater than 40,000 BP with most occurring between 1,000 and 14,000 BP. The limit of carbon-14 dating is currently about 60,000 years; the use of linear accelerators possibly extend this limit back to about 100,000 years. All dates have an associated error factor which results from the random nature of radioactive decay. The date is therefore given as a time interval (Pos and Neg) within which the true age will lie,

with a certain probability. Generally, the error refers to one standard deviation i.e., there is a 68% probability that the true age lies within the time interval given. However, dates from the GSC are reported within 2 standard deviations. Furthermore, GSC shell dates are normalised to $\delta^{13}\text{C}=0\%$ PDB, compared to $\delta^{13}\text{C}=-25\%$ PDB for other laboratories. This means that GSC dates are about 410 years younger than would be reported from the same sample by another laboratory. For comparative purposes it is recommended that 410 years be added to GSC ages and the error converted to 1 standard deviation (Miller *et al.*, 1988).

Locality

Locality refers to the community, lake or pond closest to where the sample was taken.

Location

The location of the sample site is given by latitude and longitude, to the closest minute.

Elevation (Elev.)

This generally refers to metres above or below sea level at which the sample was taken. For lake sediment samples (e.g., gyttja) lake surface elevation is given. For dates below sea level depth is indicated by a minus sign.

Collector (Coll.)

This is the initials of the collector of the sample. Refer to Appendix A for names (where known).

Reference

This column represents the source from which the sample information was obtained. Most dates are from the Geological Survey of Canada (GSC) laboratory, and are listed in the radiocarbon date list published yearly by the GSC. However, if the dates are used in a publication, the source is listed in the reference column. Refer to Appendix B for complete citations.

Material

Seven different types of materials have been dated; wood, shells, peat, gyttja (total organics), whale bone, calcite crystals and charcoal. The reliability of ages varies

between the types of materials measured, depending on the amount of carbon present with charcoal and wood being the most reliable. Other material may be susceptible to contamination by older or younger carbon, commonly through the action of groundwater. This is especially true for total organic matter samples.

Comments

These are general comments with reference to the date of the sampled material. In most cases these are summarized from comments by the collector.

APPENDIX A: INITIALS OF SAMPLE COLLECTORS

A.D.	A. Dyer	J.S.	J. Shaw
A.I.S.	A. Sawiciki	J.S.T.	J.S. Thompson
A.M.	A. Morrison	J.T.A.	J.T. Andrews
A.M.D.	A.M. Davis	J.V.W.	
A.R.	A. Ruffman	K.H.	K.Henningsmoen
A.S.D.	A.S. Dyke	K.L.	K. Lane
A.W.D.	A.W. Damman	L.H.K.	L.H. King
B.C.H.	B.C. Hood	M.A.	M. Alam
B.M.	B. Mathews	M.A.M.	M. A. Mihychuk
B.Y.	B. Young	M.J.B.	M.J. Batterson
C.F.K	C.F. Krol	M.K.	M. Kuc
C.G.R.	C.G. Rodrigues	M.M.	M. Murray
C.M.	C. Mackenzie	M.P.S.	M.P. Stopp
C.M.T.	C.M. Tucker	M.R.	M. Rashid
C.N.	C. Nagle	M.S.	M. Stenberger
C.O.E.	C.O. Evans	N.O.	N. O'Donnell
C.P.	C. Pereira	N.R.C.	N.R. Catto
C.R.H.	C.R. Harington	O.H.L.	O.H. Løken
D.G.L.	D.G. Liverman	P.A.E.	P.A. Eegginton
D.G.V.	D.G. Vanderveer	P.C.	P. Carignan
D.H.	D. Hodgson	P.J.M.	P.J. Mudie
D.L.F.	D.L. Forbes	Pk.C.	Parks Canada
D.M.	D. Macleod	P.R.	P. Renouf
D.M.T.	D.M. Taylor	P.U.C.	P.U. Clark
D.N.S.	D.N. Simpson	R.A.	R. Auger
D.R.E.	D.R. Engstrom	R.A.K.	R.A. Klassen
D.R.G.	D.R. Grant	R.D.M.	R.D. Muir
D.T.R.	D.T. Robbins	R.H.	R. Hesse
E.G.W.	E.G. Walker	R.H.F.	R.H. Fillon
E.H.	E. Harp	R.J.	R. Jordan
E.H.C.	E.H. Cumming	R.J.F.	R.J. Fulton
E.P.H.	E.P. Henderson	R.J.R.	R.J. Rogerson
F.C.T.	F.C. Taylor	R.M.	R. McGhee
F.K.	F. Kirby	R.R.	R. Ringer

G.A.K.		R.T.P.	R.T. Pastore
G.P.	G. Penney	S.A.	S. Awadallah
G.V.	G. Vilks	S.A.K.	S.A. Kaplan
H.E.D.	H.E. Devereux	S.J.A.	S.J. Austin
H.E.W.	H.E. Wright	S.K.C.	S.K. Chough
H.F.L.	H.F. Lamb	S.L.	S. Loring
H.I.	H. Ingstad	S.L.C.	S.L. Cox
H.J.	H. Josenhans	S.R.	S. Richter
H.N.		S.R.V.	S.R. Vardy
I.A.B.	I.A. Brookes	S.S.	S. Short
I.A.H.	I.A. Hardy	S.Sc.	S. Scott
J.A.T.	J.A. Tuck	T.B.	T. Bell
J.B.M.	J.B. Macpherson	T.C.	T. Christopher
J.C.T.	J.C. Thomas	T.W.A.	T.W. Anderson
J.D.I.	J.D. Ives	U.L.	U. Linnamae
J.G.	J. Grayson	V.K.P.	V.K. Prest
J.M.S.	J.M. Shearer	W.D.B.	W.D. Bruckner
J.P.G.	J-P. Guilbault	W.W.F	W.W. Fitzhugh
J.P.J.	J.P. Johnson		

APPENDIX B: REFERENCES FOR RADIOCARBON DATES

- Alam, M., Piper, D.J.W. and Cooke, B.S.
1983: Late Quaternary stratigraphy and paleo-oceanography of the Grand Banks continental margin, eastern Canada. *Boreas*, Volume 12, pages 253-261.
- Anderson, T.W.
1983: Preliminary evidence for Late Wisconsinan climatic fluctuations from pollen stratigraphy in Burin Peninsula, Newfoundland. *In Current Research, Part B, Geological Survey of Canada, Paper 83-1B*, pages 185-188.
- Anderson, T.W. and Lewis, C.F.M.
1992: Climatic influences of deglacial drainage in southern Canada at 10 to 8 KA suggested by pollen evidence. *Geographie Physique et Quaternaire* Volume 46, number 3, pages 255-272.
- Andrews, J.T., Laymon, C.A. and Briggs, W.M.
1989: Radiocarbon date list III: Labrador and northern Quebec, Canada and Radiocarbon date list VI: Baffin Island, North West Territories, Canada. Institute of Arctic and Alpine Research, Boulder, Colorado, Occasional paper 46.
- Auger, R. and Stopp, M.
1989: 1986 archaeological survey of southern Labrador: Québec/Labrador border to Cape Charles. *Archaeology in Newfoundland and Labrador 1986, Annual Report 7*, pages 198-212.
- Awadallah S.A. and Batterson M.J.
1990: Comment on " Late deglaciation of the Central Labrador coast and its implications for the age of glacial lakes Naskaupi and McLean and for pre-history" by P.U. Clark and W.W. Fitzhugh. *Quaternary Research*, Volume 34, pages 372-373.
- Barrie, C.Q. and Piper, D.J.W.
1982: Late Quaternary marine geology of Makkovik Bay, Labrador. *Geological Survey of Canada, Paper 81-17*, 37 pages.
- Batterson, M.J., Liverman, D.G.E. and Kirby, G.E.
1993: Glacial lake development and marine inundation, Deer Lake area, Newfoundland, Canada: topographically controlled deglaciation of an interior basin. *Journal of Quaternary Science*, Volume 8, pages 327-337.

- Batterson, M, and Sheppard, K.
2000: Deglacial history of northern St. Georges Bay, western Newfoundland. Current Research (2000) Newfoundland Department of Mines and Energy Geological Survey, Report 2000-1, pages 33-47.
- Bell, T.
1987: Quaternary geomorphology, glacial history and relative sea level change in outer Nachvak Fiord, northern Labrador. Unpublished M.Sc. thesis, Memorial University of Newfoundland, St. John's, Nfld.
- Bell, T., Liverman D.G.E., Sheppard, K. and Batterson MJ. In press.
Sedimentology and stratigraphy of southern St. George's Bay. Canadian Journal of Earth Sciences.
- Bell, T., Rogerson R.J. and Mengel, F.
1989: Reconstructed ice-flow patterns and ice limits using drift pebble lithology, outer Nachvak Fiord, northern Labrador. Canadian Journal of Earth Sciences, Volume 26, pages 577-590.
- Berry, J.C. and Drimmie, R.J.
1982: University of Waterloo radiocarbon dates I. Radiocarbon 24(1), pages 68-82.
- Blake, W.JR.
1982: Geological Survey of Canada Radiocarbon Dates XXII. Geological Survey of Canada, paper 82-7.

1983: Geological Survey of Canada Radiocarbon Dates XXIII. Geological Survey of Canada, paper 83-7.

1984: Geological Survey of Canada Radiocarbon Dates XXIV. Geological Survey of Canada, paper 84-7.

1986: Geological Survey of Canada Radiocarbon Dates XXV. Geological Survey of Canada, paper 85-7.

1987: Geological Survey of Canada Radiocarbon Dates XXVI. Geological Survey of Canada, paper 86-7.

1988: Geological Survey of Canada Radiocarbon Dates XXVII. Geological Survey of Canada, paper 87-7.

Bonifay, D. and Piper, D.J.W.

1988: Probable Late Wisconsinan ice margin on the Upper Continental Slope off St. Pierre Bank, eastern Canada. *Canadian Journal of Earth Sciences*, Volume 25, pages 853-865.

Brookes, I.A.

1973: Late Wisconsinan glaciation of southwestern Newfoundland (with special reference to the Stephenville map-area). *Geological Survey of Canada, Paper 73-40*, 31 pages.

1977a: Geomorphology and Quaternary Geology of Codroy Lowland and adjacent Plateaus, southwest Newfoundland. *Canadian Journal of Earth Sciences*, Volume 14, pages 2101-2120.

1977b: Radiocarbon age of Robinsons Head Moraine, west Newfoundland, and its significance for postglacial sea level changes. *Canadian Journal of Earth Sciences*, Volume 14, pages 2121-2126.

Brookes, I.A. and Stevens, R.K.

1985: Radiocarbon age of rock-boring *Hiatella Arctica* (Linné) and postglacial sea-level change at Cowhead, Newfoundland. *Canadian Journal of Earth Sciences*, Volume 22, pages 136-140.

Brookes, I.A., McAndrews, J.H. and Von Bitter, P.H.

1982: Quaternary interglacial and associated deposits in southwest Newfoundland. *Canadian Journal of Earth Sciences*, Volume 19, pages 410-423.

Brookes, I.A., Scott, D.B. and McAndrews, J.H.

1985: Postglacial relative sea-level change, Port au Port area, west Newfoundland. *Canadian Journal of Earth Sciences*, Volume 22, pages 1039-1047.

Buckley, J.D., and Willis, E.H.

1970: Isotopes' radiocarbon measurements VIII. *Radiocarbon* 12(1), pages 87-129.

1972: Isotopes' radiocarbon measurements IX. *Radiocarbon* 14(1), pages 114-139.

Carignan, P.

1975: The Beaches: a multi-component habitation site in Bonavista Bay.

Ottawa: National Museum of Man, Archaeological Survey of Canada, Mercury Series 39: 225 pages.

1977: Beothuck archaeology in Bonavista Bay. Ottawa: National Museum of Man, Archaeological Survey of Canada, Mercury Series 69: 273 pp.

Christopher, T.K., Daverport, P.H. and Burden E.T.

1993: The effects of urban and industrial development on the geochemistry of the watersheds in the St. John's area: Preliminary results. Current Research (1993) Newfoundland Department of Mines and Energy Geological Survey Branch, Report 93-1, pages 419-433.

Clark, P.U.

1982: Late Quaternary history of the Iron Strand region, Torngat Mountains, northernmost Labrador, Canada. American Quaternary Association, Abstracts with Program, Volume 7, page 82.

1984: Glacial geology of the Kangalaksiorvik-Abloviak region, northern Labrador, Canada. Ph.D. thesis, Department of Geological Sciences, University of Colorado, Boulder, Colorado, 248 pages.

1988: Glacial geology of the Torngat Mountains, Labrador. Canadian Journal of Earth Sciences, Volume 25, pages 1184-1198.

Clark, P.U. and Fitzhugh, W.W.

1990: Late deglaciation of the central Labrador coast and its implications for the age of glacial lakes Naskaupi and McLean and for pre-history. Quaternary Research, Volume 34, pages 296-305.

1991: Postglacial relative sea level history of the Labrador coast and interpretation of the archaeological record. In Paleoshorelines and Prehistory: An investigation of method. Edited by L.L. Johnson. CRC Press, USA, pages 189-213.

Clark, P.U. and Josenhans, H.W.

1986: Late Quaternary land-sea correlations, northern Labrador and Labrador Shelf. Geological Survey of Canada, Paper 86-1B, pages 171-178.

Cox, S.L.

1977: Prehistoric settlement and culture change at Okak, Labrador. Cambridge: Harvard University, Department of Anthropology, Ph.D. dissertation, 492 pages.

- 1978: Palaeo-Eskimo occupations of the north Labrador coast. *Arctic Anthropology*, volume 15(2), pages 96-118.
- Cox, S.L. and Spiess, A.
1980: Dorset settlement and subsistence in northern Labrador. *Arctic*, volume 33(3): pages 659-669.
- Cumbaa, S.L.
1984: Diverse fures and deer's flesh' - animal use by a 17th century Beothuk population at Boyd's Cove, Notre Dame Bay, Newfoundland. Ottawa: National Museum of Natural Sciences, Zooarchaeological Identification Centre, unpublished manuscript.
- Cumming, E.H., Aksu, A.E. and Mundie, P.J.
1992: Late Quaternary glacial and sedimentary history of Bonivista Bay, northeast Newfoundland. *Canadian Journal of Earth Sciences*, volume 29, pages 222-235.
- Davis, A.M. and Wickman, S.H.
1987: The microstratigraphy of two peat sequences from northeastern Newfoundland. *Géographie Physique et Quaternaire*, Volume 41, pages 355-364.
- De Vernal, A. and Hilliere-Marcel, C.
1986: Paléoenvironnements du Wisconsinien moyen dans l'est du Canada par l'analyse palynologique et isotopique de sédiments océaniques et continentaux. *Revue de géologie dynamique et de géographie physique*, Volume 27, pages 119-130.

1987: Paleoenvironments along the eastern Laurentide ice sheet margin and timing of the last ice maximum and retreat. *Géographie Physique et Quaternaire*, Volume 41, pages 265-377.
- Dyck, W. and Fyles, J.G.
1963: Geological Survey of Canada Radiocarbon Dates I and II. Geological Survey of Canada paper 63-21.
- Dyer, A.
1986: A palynological investigation of late Quaternary vegetational history of the Baie Verte Peninsula, northcentral Newfoundland. M.Sc. thesis, Department of Geography, Memorial University of Newfoundland, St. John's, Newfoundland, 182 pages.

- Dyke, A.S., Hooper, J., Harington, C.R. and Savelle, J.M.
1999: The Late Wisconsinan and Holocene record of walrus (*Odobenus rosmarus*) from North America: a review with new data from Arctic and AtlanticCanada. *Arctic* 52(2), pages 160-181.
- Evans, C.O.
1981: 1980 field report of Frenchmen's Island project. *Archaeology in Newfoundland & Labrador 1980, Annual Report 1*, pages 88-94.

1982: Frenchmen's Island site (CIAI-1): 1981 preliminary field report. *Archaeology in Newfoundland & Labrador 1981, Annual Report 2*, pages 210-225.
- Fillon, R.H. and Harmes, R.A.
1982: Northern Labrador Shelf glacial chronology and depositional environments. *Canadian Journal of Earth Sciences*, Volume 19, pages 162-192.
- Fitzhugh, W.W.
1972: Environmental archaeology and cultural systems in Hamilton Inlet, Labrador. *Smithsonian Contributions to Anthropology*, Number 16, 245 pages.

1974: Hound Pond 4: A Charles complex site in northern Groswater Bay, Labrador. *Man in the Northeast*, Volume 7, pages 87-103.

1975: A Maritime Archaic sequence from Hamilton Inlet, Labrador. *Arctic Anthropology*, Volume 12, pages 117-138.

1976: Preliminary culture of Nain, Labrador: Smithsonian fieldwork for 1975. *Journal of Field Archaeology* 3(2), pages 123-142.

1977: Population movement and culture change on the central Labrador coast. In *Amerinds and the Paleoenvironments in northeastern North America*, edited by W.S. Newman and B. Salwen. *Annals of the New York Academy of Sciences* 288, pages 481-497.

1978a: Maritime Archaic cultures of the central and northern Labrador coast. *Arctic Anthropology* 15(2), pages 61-95.

1978b: Winter Cove 4 and the Point Revenge occupation of the central Labrador coast. *Arctic Anthropology* 15(2), pages 146-174.

1980: Preliminary report on the Torngat Archaeological Project. *Arctic* 33(3), pages 585-606.

1984: Residence pattern development in the Labrador Maritime Archaic: longhouse models and 1983 surveys. *Archaeology in Newfoundland & Labrador 1983, Annual Report 4*, pages 6-47.

1985a: Early Maritime Archaic settlement studies and central coast surveys. *Archaeology in Newfoundland & Labrador 1984, Annual Report 5*, pages 48-85.

1985b: The Nulliak pendants and their relation to spiritual traditions in northeast prehistory. *Arctic Anthropology* 22(2), pages 87-109.

1986: Maritime Archaic field studies in central Labrador and notes on Northwest Corners. *Archaeology in Newfoundland & Labrador 1985, Annual Report 6*, pages 54-65.

1994: Staffe Island 1 and the northern Labrador Dorset-Thule succession. In *Threads of Arctic Prehistory: papers in honour of William E. Taylor, Jr.*, edited by D. Morrison and J-L. Pilon. Hull: Canadian Museum of Civilization, Archaeological Survey of Canada, Mercury Series Paper no. 149, pages 239-268.

Forbes, D.L. and Shaw, J.

1989: Cruise report 88018 (E). *Navicula operations in southwest Newfoundland coastal waters: Port au Port Bay, St. George's Bay to Barasway Bay and adjacent inner shelf* Geological Survey of Canada, Open File 2041.

Forbes, D.L., Shaw, J. and Eddy, B.G.

1993: Late Quaternary sedimentation and the postglacial sea-level minimum in Port au Port Bay and Vicinity, west Newfoundland. *Atlantic Geology*, Volume 29, pages 1-26.

Grant, D.R.

1986a: *Surficial geology, St. Anthony - Blanc-Sablon, Newfoundland-Quebec*; Geological Survey of Canada, Map 1610A, scale 1:125,000.

1986b: *Surficial geology, Port Saunders, Newfoundland*; Geological Survey of Canada, Map 1622A, scale 1:250,000.

1991: Surficial geology, Stephenville - Port aux Basques, Newfoundland. Geological Survey of Canada, Map 1737A, scale 1:250,000.

1992: Quaternary geology of St. Anthony - Blanc-Sablon area, Newfoundland and Quebec. Geological Survey of Canada, Memoir 427, 60 pages.

1994: Quaternary geology of Port Saunders map area, Newfoundland. Geological Survey of Canada, Paper 91-20, 59 pages.

Grayson, J.F.

1956: The postglacial history of vegetation and climate in the Labrador-Quebec region as determined by palynology. Ph.D. Thesis, University of Michigan, Ann Arbor, Michigan.

Harington, C.R., Anderson, T.W. and Rodrigues, C.G.

1993: Pleistocene walrus (*Odobenus rosmarus*) from Forteau, Labrador. *Géographie physique et Quaternaire* 47(1), pages 111-118.

Hood, B.C.

1981: Miscellaneous archaeological investigations along the north-central Labrador coast: 1980. *Archaeology in Newfoundland & Labrador 1980*, Annual Report 1, pages 58-68.

1986: Nukasusutok-12: early/middle Dorset axial structures from the Nain region, Labrador. In *Palaeo-Eskimo cultures in Newfoundland, Labrador and Ungava*. St. John's: Memorial University of Newfoundland, Reports in Archaeology no. 1, pages 49-64.

Henderson, E.P.

1972: Surficial geology of Avalon Peninsula, Newfoundland. Geological Survey of Canada, Memoir 368, 121 pages.

Henningsmoen, K.E.

1977: Pollen-analytical investigations in the L'anse aux Meadows area, Newfoundland. In *The Discovery of a Norse Settlement in America*. Edited by A.S. Ingatad. Universitetsforlaget, Oslo-Bergen-Fromso, pages 289-340.

Hesse, R., Sung Kwun Chough and Rakofsky, A.

1987: The northwest Atlantic mid-ocean channel of the Labrador Sea. Sedimentology of a giant deep-sea channel. *Canadian Journal of Earth Sciences*, Volume 24, pages 1595-1624.

Hodgson, D.A. and Fulton, R.J.

1972: Site description, age and significance of a shell sample from the mouth of the Michael River, 30 km south of Cape Harrison, Labrador. *In* Report of Activities, Part B. Geological Survey of Canada, Paper 72-1B, pages 102-105.

Johnson, R.H.

1985: Geomorphic evidence and the upper marine limit in northern Labrador. *In* 'Our Geographic Mosaic: Research Essays in Honour of G.C. Merrill' edited by D.B. Knight, Carleton University Press, Ottawa, pages 70-91.

Jordan, R.

1975: Pollen diagrams from Hamilton Inlet, central Labrador, and their environmental implications for the northern Maritime Archaic. *Arctic Anthropology*, volume 12, pages 92-116.

1980: Preliminary results from archaeological investigations on Avayalik Island, extreme northern Labrador. *Arctic* 33(3), pages 607-627.

Josenhans, H.W., Zevenhuizen, J. and Klassen, R.A.

1986: The Quaternary geology of the Labrador Shelf. *Canadian Journal of Earth Sciences*, Volume 23, pages 1190-1213.

Kaplan, S.A.

1983: Economic and social change in Labrador Neo-Eskimo culture. Bryn Mawr College, Department of Anthropology, Ph.D. dissertation, 876 pages.

1985: Early Neoeskimo sites in central Labrador. *Archaeology in Newfoundland and Labrador 1984*, Annual Report 5, pages 13-47.

Kennedy, B.V.

1981: Marriage patterns in an Archaic population: a study of skeletal remains from Port au Choix, Newfoundland. Ottawa: National Museum of Man, Archaeological Survey of Canada, Mercury Series Paper No. 104, 188 pages.

Kigoshi, K., Aizawa, H. and Suzuki, N.

1969: Gakushuin natural radiocarbon measurements VII. *Radiocarbon* 11(2), pages 295-326.

- Kigoshi, K., Suzuki, N., and Fukatsu, H.
1973: Gakushuin natural radiocarbon measurements VIII. Radiocarbon 15(1), pages 42-67.
- King, G.A.
1985: A standard method for evaluating radiocarbon dates of local deglaciation: Application to the deglaciation history of northern Labrador and adjacent Quebec. *Géographie physique et Quaternaire*, Volume 39, pages 163-182.
- Krol, C.F.
1986: Middle Dorset settlement-subsistence patterns in western Newfoundland: a view from Broom Point. St. John's: Memorial University of Newfoundland, Department of Anthropology, M.A. thesis, 304 pages.
- Kuc, M.
1975: Paleoecological investigations of the Norse settlement site at L'anse aux Meadows, Newfoundland. *In* Report of Activities, Part A. Geological Survey of Canada, Paper 75-1A, pages 445-450.
- Lamb, H.F.
1978: Post-glacial vegetation change in southeastern Labrador. Unpublished M.Sc. thesis, University of Minnesota, Minneapolis, Minnesota, 101 pages.
- 1980: Late Quaternary vegetational history of southeastern Labrador. *Arctic and Alpine Research*, Volume 12, pages 117-135.
- 1985: Palynological evidence for postglacial change in the position of the limit in Labrador. *Ecological Monographs*, Volume 55, pages 241-258.
- Le Blanc, R.
1993: Current Research: Far North. *American Antiquity*, volume 58(2), pages 357-362.
- Linnamae, U.
1975: The Dorset culture: a comparative study in Newfoundland and the Arctic. *Technical Papers of the Newfoundland Museum* 1, 264 pages.
- Liverman, D.G.E.
1994: Relative sea-level history and isostatic rebound in Newfoundland. *Boreas*, volume 23, pages 217-230.

Løken, O.

1962: The late-glacial and postglacial emergence and the deglaciation of northernmost Labrador. *Geological Bulletin*, Volume 17, pages 23-56.

Loring, S.

1985: Archaeological investigations into the nature of the late prehistoric Indian occupation in Labrador: a report on the 1984 field season. *Archaeology in Newfoundland and Labrador 1984*, Annual Report 5, pages 122-153.

1988: Keeping things whole: nearly two thousand years of Indian (Innu) occupation in northern Labrador. In *Boreal Forest and Sub-Arctic Archaeology*, edited by C.S. Reid. London: Ontario Archaeological Society, Occasional Publications of the London Chapter No. 6, pages 157-182.

1989: Tikkoatokak (HdCl-1): a late prehistoric Indian site near Nain. *Archaeology in Newfoundland & Labrador 1986*, Annual Report 7, pages 52-71.

Loring, S. and Cox, S.L.

1986: The Postville Pentecostal Groswater site, Kaipokok Bay, Labrador. In *Palaeo-Eskimo cultures in Newfoundland, Labrador and Ungava*. St. John's: Memorial University of Newfoundland, Reports in Archaeology no. 1, pages 65-93.

Lowden, J.A. and Blake, W. Jr.

1968: Geological Survey of Canada Radiocarbon Dates VII. *Geological Survey of Canada paper 68-2*, part B.

1970: Geological Survey of Canada Radiocarbon Dates IX. *Geological Survey of Canada paper 70-2*, part B.

1973: Geological Survey of Canada Radiocarbon Dates XIII. *Geological Survey of Canada paper 73-7*.

1975: Geological Survey of Canada Radiocarbon Dates XV. *Geological Survey of Canada paper 75-7*.

1978: Geological Survey of Canada Radiocarbon Dates XVIII. *Geological Survey of Canada paper 78-7*.

1979: Geological Survey of Canada Radiocarbon Dates XIX. *Geological Survey of Canada paper 79-7*.

1980: Geological Survey of Canada Radiocarbon Dates XX. Geological Survey of Canada paper 80-7.

1981: Geological Survey of Canada Radiocarbon Dates XXI. Geological Survey of Canada paper 81-7.

Lowden, J.A., Robertson, I.M. and Blake, W. Jr.

1971: Geological Survey of Canada Radiocarbon Dates XI. Geological Survey of Canada paper 71-7.

1977: Geological Survey of Canada Radiocarbon Dates XVII. Geological Survey of Canada paper 77-7.

Lowden, J.A., Wilmeth, R. and Blake, W. Jr.

1969: Geological Survey of Canada Radiocarbon Dates VIII. Geological Survey of Canada Paper 69-2, Part B, pages 22-42.

1972: Geological Survey of Canada Radiocarbon Dates XII. Geological Survey of Canada paper 72-7.

Macpherson, J.B.

1982: Post glacial vegetation history of the eastern Avalon Peninsula, Newfoundland and Holocene climatic change along the eastern Canadian sealand. *Géographie physique et Quaternaire*, volume 36, pages 175-196.

1995: A 6ka reconstruction for the island of Newfoundland from a synthesis of Holocene lake-sediment pollen records. *Géographie physique et Quaternaire*, volume 49, 163-182.

1996: Delayed deglaciation by downwasting of the northeast Avalon Peninsula, Newfoundland: An application of the early postglacial pollen record. *Géographie physique et Quaternaire*, 50: 201-220.

Macpherson, J.B. and Anderson, T.W.

1985: Further evidence of late glacial climatic fluctuations from Newfoundland: pollen stratigraphy from a north coast site. *In* Current Research, Part B, Geological Survey of Canada, Paper 85-1B, pages 383-390.

- McGhee, R. and Tuck, J.A.
1975: An Archaic sequence from the Strait of Belle Isle, Labrador. Ottawa: National Museum of Man, Archaeological Survey of Canada, Mercury Series 34, 247 pages.
- McNeely, R.
1989: Geological Survey of Canada Radiocarbon Dates XXVIII. Geological Survey of Canada, paper 88-7.
- McNeely, R. and Atkinson, D.E..
1996: Geological Survey of Canada Radiocarbon Dates XXXII. Geological Survey of Canada Current Research 1995-G.
- McNeely, R. and Jorgensen, P.K.
1992 Geological Survey of Canada Radiocarbon Dates XXX. Geological Survey of Canada, paper 90-7

1993: Geological Survey of Canada Radiocarbon Dates XXXI. Geological Survey of Canada, paper 91-7.
- McNeely, R. and McCuaig, S.
1991: Geological Survey of Canada Radiocarbon Dates XXIX. Geological Survey of Canada, paper 89-7.
- Miller, G.H., Hearty, P.J. and Stravers, J.A.
1988: Ice-sheet dynamics and glacial history of southeasternmost Baffin Island and outermost Hudson Strait. *Quaternary Research*, Volume 30, pages 116-136.
- Morland R.D.
1999: Canadian Archaeological Radiocarbon Database.
<http://www.canadianarchaeology.com/radiocarbon/card/card.htm>
- Morrison, A.
1970: Pollen diagrams from interior Labrador. *Canadian Journal of Botany*, Volume 48, pages 1957-1975.
- Mudie, P.J. and Guilbault, J.P.
1982: Ecostratigraphic and paleomagnetic studies of late Quaternary sediments on the northeast Newfoundland Shelf. *In* Current Research, Part B, Geological Survey of Canada, Paper 82-1B, pages 107-116.

- Nagle, C.
1978: Indian occupations of the Intermediate period on the Central Labrador coast: a preliminary synthesis. *Arctic Anthropology*, Volume 15, pages 119-145.
- 1984: Lithic raw materials procurement and exchange in Dorset culture along the Labrador coast. Waltham, MA: Brandeis University, Department of Anthropology, Ph.D. dissertation, 615 pages.
- Nydal, R.
1989: A critical review of radiocarbon dating of a Norse settlement at L'Anse au Meadows, Newfoundland, Canada. *Radiocarbon* 31(3), pages 976-985.
- Nydal, R., Gulliksen, S. and Lövseth, K.
1972: Trondheim natural radiocarbon measurements VI. *Radiocarbon* 14(2), pages 418-451.
- Nydal, R., Lovseth, K. and Syrstad, O.
1970: Trondheim natural radiocarbon measurements V. *Radiocarbon* 12(1), pages 205-237.
- Pastore, R.T.
1984: Excavations at Boyd's Cove, Notre Dame Bay - 1983. *Archaeology in Newfoundland and Labrador 1983, Annual Report 4*, pages 98-125.
- 1985: Excavations at Boyd's Cove - 1984: a preliminary report. *Archaeology in Newfoundland and Labrador 1984, Annual Report 5*, pages 322-337.
- 1989: Report for permit no. 86-16 Inspector Island (DiAq-1). *Archaeology in Newfoundland and Labrador 1986, Annual Report 7*, pages 260-269.
- Penney, G.
1981a: A preliminary report on the excavation of the L'Anse à Flamme site (CjAx-1). *Archaeology in Newfoundland and Labrador 1980, Annual Report 1*, pages 95-110.
- 1981b: A Point Peninsula rim sherd from L'Anse à Flamme, Newfoundland. *Canadian Journal of Archaeology* 5, pages 171-173.
Piper, D.J.W. and Pereira, C.G.P.

1992: Late Quaternary sedimentation in central Flemish Pass. *Canadian Journal of Earth Sciences*. Volume 29, pages 525-550.

Proudfoot, D.N. and St.Croix, L.

1987: Quaternary geology of the Bellburns (12I/5 and 6) map area. *In* Current Research, Newfoundland Department of mines and Energy, Mineral Development Division, Report 87-1, pages 11-21.

Renouf, M.A.P.

1976: A late Paleo-Indian and Early Archaic sequence in southern Labrador.

St. John's: Memorial University of Newfoundland, Department of Anthropology, M.A. thesis, 145 pages.

1986: 1985 excavations at Phillip's Garden and Pointe Riche, Port au Choix National Historic Park. *Archaeology in Newfoundland & Labrador 1985, Annual Report 6*, pages 159-195.

1991: Archaeological investigations at the Port au Choix National Historic Park:report of the 1990 field season. Halifax: Canadian Parks Service, Atlantic Region, unpublished report.

1992: The 1991 archaeological field season at the Port au Choix National Historic Park. Halifax: Canadian Parks Service, Atlantic Region, unpublished report.

1993: The 1992 archaeological field season, Port au Choix National Historic Park:report of archaeological excavations.Halifax: Canadian Parks Service, Atlantic Region, unpublished report.

1994: Two transitional sites at Port au Choix, northwestern Newfoundland. *In* *Threads of Arctic Prehistory: papers in honour of William E. Taylor, Jr.*, edited by D. Morrison and J-L. Pilon.Hull: Canadian Museum of Civilization, Archaeological Survey of Canada, Mercury Series Paper no. 149, pages 165-195.

Renouf, M.A.P. and Bell, T.

1998: Searching for the Maritime Archaic Indian habitation site at Port au Choix, Newfoundland:an integrated approach using archaeology, geomorphology and sea level history. St. John's: Department of Tourism, Culture and Recreation, Culture and Heritage Division, unpublished report.

Robbins, D.T.

1985: Stock Cove, Trinity Bay: the Dorset Eskimo occupation of Newfoundland from a southeastern perspective. St. John's: Memorial University of Newfoundland, Department of Anthropology, M.A. thesis, 190 pages.

Rodrigues, C.G., Ceman, J.A. and Vilks, G.

1993: Late Quaternary paleoceanographic of deep and intermediate water masses off Gaspé Peninsula, Gulf of St. Lawrence: foraminiferal evidence. Canadian Journal of Earth Science, Volume 30, pages 1390-1403.

Rutherford, A.A., Wittenberg, J. and Gordon, B.C.

1984 : University of Saskatchewan radiocarbon dates X. Radiocarbon 26(2), pages 241-292.

Rutherford, A.A., Wittenberg, J. and Wilmeth, R.

1979: University of Saskatchewan radiocarbon dates VIII. Radiocarbon 21(1), pages 48-94.

Sawicki, A.I.

1984 : Palaeo-Eskimo occupations in Bonavista Bay, Newfoundland St. John's: Memorial University of Newfoundland, Department of Anthropology, M.A. thesis, 246 pages.

Schafer, C.T., Tan, F.C., Williams, D.F. and Smith, J.N.

1985: Late glacial to recent stratigraphy, paleontology, and sedimentary processes, Newfoundland Continental slope and rise. Canadian Journal of Earth Sciences, Volume 22, pages 266-282.

Scott, S., Catto, N. and Liverman, D.G.E.

1991. Quaternary marine deposits of the Springdale - Hall's Bay area, Newfoundland. Atlantic Geology, volume 27, pages 181-191.

Shaw, J. and Forbes, D.L.

1987: Coastal barrier and beach-ridge sedimentation in Newfoundland. In Proceedings, Canadian Coastal Conference 1987 (Quebec). National research Council Canada, Ottawa, pages 437-454.

Shaw, J. and Forbes, D.L.

1990: Late Quaternary sedimentation in St. Georges Bay, Southwest Newfoundland; acoustic stratigraphy and seabed deposits. Canadian Journal of Earth Sciences, Volume 27, pages 964-983.

1995: The postglacial relative sea-level lowstand in Newfoundland.
Canadian Journal of Earth Sciences, 32: 1308-1330.

Short, S.K.

1978: Palynology: A Holocene environmental perspective for archaeology in Labrador - Ungava. Arctic Anthropology, Volume 15-2, pages 9-35.

1981: Radiocarbon date list I: Labrador and northern Quebec, Canada. Institute of Arctic and Alpine Research, Occasional Paper No. 36, 33 pages.

Simpson, D.N.

1984: The Port au Port Peninsula archaeology project: preliminary report. Archaeology in Newfoundland and Labrador 1983, Annual Report 4, pages 126-141.

Stopp, M.P.

1997: Long-term coastal occupancy between Cape Charles and Trunmore Bay, Labrador. Arctic 50(2), pages 119-137.

Stuckenrath, R. and Mielke, J.E.

1973: Smithsonian Institution radiocarbon measurements VIII. Radiocarbon 15(2), pages 388-424.

Stuckenrath, R.J., Coe, W.R. and Ralph, E.K.

1966: University of Pennsylvania radiocarbon dates IX. Radiocarbon 8, pages 348-385.

Thomson, J.C.

1986: Caribou trail archaeology: 1985 investigations of Saglek Bay and inner Saglek Fjord. Archaeology in Newfoundland & Labrador 1985, Annual Report 6, pages 9-53.

1988: Late Dorset shamanism at Shuldham Island 9, northern Labrador. Bryn Mawr College, Department of Anthropology, M.A. thesis, 214 pages.

1989: Maritime Archaic and Middle Dorset occupations at Fleur de Lys: preliminary results of 1986 investigations on the Baie Verte Peninsula. Archaeology in Newfoundland & Labrador 1986, Annual Report 7, pages 250-259.

- Trautman, M.A. and Willis, E.H.
1966: Isotopes Inc., radiocarbon measurements III: Radiocarbon, Volume 5, pages 62-79.
- Tuck, J.A.
1970: An Archaic Indian cemetery in Newfoundland. *Scientific American* 222(6), pages 112-121.
- 1978: Newfoundland and Quebec. In *Canadian archaeological radiocarbon dates (revised version)*, compiled by R. Wilmeth. Ottawa: National Museum of Man, Archaeological Survey of Canada, Mercury Series 77, pages 192-198.
- 1983: Contract archaeology at Memorial University. *Archaeology in Newfoundland and Labrador 1982, Annual Report 3*, pages 57-75.
- Wilmeth, R.
1978: *Canadian archaeological radiocarbon dates (revised version)*. Ottawa: National Museum of Man, Archaeological Survey of Canada, Mercury Series Paper No. 77, 204 pages.
- Vardy, S.R.
1991: The deglaciation and early postglacial environmental history of southcentral Newfoundland: Evidence from the palynostratigraphy and geochemical stratigraphy of lake sediments. M.Sc thesis, department of Geography, Memorial University of Newfoundland, 208 pages.
- Vilks, G.
1980: Postglacial sedimentation on Labrador shelf. *Geological Survey of Canada, Paper 78-28*, 28 pages.
- Vilks, G., Deonarine, B. and Winters, G.
1987: Late Quaternary marine geology of Lake Melville, Labrador. *Geological Survey of Canada Paper, Volume 87-22*, 50 pages.
- Vilks, G., Hardy, I.A. and Josenhans, H.W.
1984: Late Quaternary stratigraphy of the inner Labrador Shelf. *In Current Research, part A. Geological Survey of Canada, Paper 84-1A*, pages 57-84.
- Vilks, G. and Mudie, P.J.
1978: Early deglaciation of the Labrador shelf. *Science*, Volume 202, pages 1181-1183.

1983: Evidence for postglacial paleoceanographic and paleoclimatic changes in Lake Melville, Labrador, Canada. *Arctic and Alpine Research*, Volume 15, pages 307-320.

Wolfe, A.P. and Butler, D.L.

1994: Late-glacial and early Holocene environments at Pine Hill Pond, Newfoundland, Canada: evidence from pollen and diatoms. *Boreas*, volume 23, pages 53-65.