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Commentaire

COMMENTS ON "LATE WISCONSINAN AND HOLOCENE HISTORY OF THE LAURENTIDE ICE SHEET", BY A. S. DYKE AND V. K. PREST

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Dyke and Prest (1987a) are to be congratulated on their synthesis on the extent and retreat of the Late Wisconsinan Ice Sheet and peripheral ice bodies (*Géographie physique et Quaternaire*, 41: 237-263), and on the accompanying maps (Dyke and Prest, 1987b, 1987c) which serve to refine Prest's earlier work (Prest, 1969, 1970). They acknowledge the provisional nature of their new maps, stating (1987a, p. 257) that their "paleogeographic reconstructions are approximations, many elements of which will need modification as more accurate dating control becomes available".

One of their colleagues has evidently made use of recently available dating control to modify his interpretation of the extent of Late Wisconsinan ice in north-central Newfoundland since Dyke and Prest's maps went to press. Grant (1987, Fig. 7) has moved the glacial limit northward to include Fogo Island, off the northeast coast, presumably on the basis of a radiocarbon date of $11\ 000 \pm 260$ BP (GSC-2973) obtained on basal organic lake sediment from the island (Blake, 1987). The lake is one of more than twenty in eastern and central Newfoundland which I and my students have cored during the past decade, funded in major part by Department of Energy, Mines and Resources Research Agreements and by Natural Sciences and Engineering Research Council Operating Grants. Basal radiocarbon dates have been obtained through the courtesy of the Geological Survey of Canada's Radiocarbon Dating Laboratory, and fourteen have been published in the Geological Survey's radiocarbon date lists (Blake, 1983, 1986, 1987; Lowdon and Blake, 1978, 1981). Grant's latest reconstruction of ice extent and deglacial isochrones in central Newfoundland is supported both by the evidence which we have obtained, and by marine shell dates.

Concurrence of the lake and shell dates is significant, for difficulties with basal lake dates are well known (Sutherland, 1980), yet where marine shell dates are unobtainable, inland or along submerged coastlines, radiocarbon dates from basal organic lake sediments are usually the only dating control available. In such areas regional consistency is a strong argument for their acceptance, especially if the dates are corrected by consideration of lake sediment stratigraphy and

paleoecological evidence. Such is the case in the northeastern Avalon Peninsula of eastern Newfoundland, where I have suggested on paleoecological grounds that a basal date of 9270 ± 150 BP (GSC-2601) from a lake near the east coast north of St. John's represents a deglacial date no earlier than 9700 BP (Macpherson, 1982). Nearby sites have yielded basal dates in the range 9400-8400 BP, and the earliest date so far obtained for the peninsula is $10\ 100 \pm 250$ BP (GSC-3136) from a lake on the interior plateau (Macpherson, 1982). These dates are surprisingly late compared with those from the north coast of the island, where the earliest date from lake sediment is $13\ 200 \pm 300$ BP (GSC-3608; Macpherson and Anderson, 1985). Nevertheless, they are regionally consistent, and they provide the only dating control for this part of the island.

Why, then, is it, that Dyke and Prest, presumably based on Grant (his own map, previously referred to, is of too small a scale to include or label all isochrones) and following Henderson (1972), present a reconstruction which advances the proposed date of deglaciation of this part of the Avalon Peninsula by as much as 3000 years and reverses the topographic sequence in which sites appear to have become ice free? Their reconstruction shows withdrawal of the eastern margin of the Avalon Peninsula ice cap from coastal sites by 13 000 BP, and depicts final melting of residual ice caps on the interior plateau between 12 000 and 11 000 BP. I stress that the oldest available date from the peninsula is 10 100 BP and that deglaciation after 10 000 BP is indicated for eastern coastal sites.

This selective use of dating control — accepting it where, in central Newfoundland, it can easily be accommodated within an existing model (Grant, 1974, 1977), and ignoring it in favour of chronological speculation for the Avalon Peninsula where model and evidence conflict — is hardly scientific. I find it disquieting that maps which are destined to be a major reference should be flawed in this way, for the Avalon Peninsula occupies a position of significance in general reconstructions of late-glacial land-ocean-atmosphere interactions.

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