

Reply to Comment on “Topographically-Controlled Deglacial History of the Humber River Basin, Western Newfoundland”

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explanation given of such a strange pattern of deglaciation, despite the prominence given the term “topographically controlled” in the 1993 and present papers. All that is offered in the latter is: “glacial Lake Howley developed rapidly during deglaciation as ice retreated across the Grand Lake basin. (...) The reconstruction represents the cumulative geomorphic signature of several temporary configurations, rather than a single lake” (Batterson and Catto, 2001: 220).

Even erosion of the putative Lake Howley overflow channel now followed by Junction Brook, at the northern extremity of Grand Lake, attributed by Batterson and Catto (2001: 223) to ice retreat from this locality, could have been achieved by drainage of a late-stage ice-marginal lake, with ice remaining (decaying) in Grand Lake trough. It is no more than speculation to assert that this channel was eroded by short-lived, high-volume overflow from a deglaciated Grand Lake trough (Batterson and Catto, 2001: 223), because no evidence is provided to show that this could not have happened at any other locality earlier in deglaciation. At least, this and the glacier-marginal alternatives could have been debated. Much else is absent from the argument in this and the related papers cited here, which seems to be aimed at supporting the original unlikely postulate, rather than assessing the evidence to arrive at a working hypothesis. Lake Howley has been “reconfigured” once; time now for its disappearance.

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REPLY TO COMMENT ON “TOPOGRAPHICALLY-CONTROLLED DEGLACIAL HISTORY OF THE HUMBER RIVER BASIN, WESTERN NEWFOUNDLAND”

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We are pleased to note that Dr. Brookes continues his interest in the Quaternary geology of Newfoundland. Although we respect the work of Dr. Brookes and acknowledge his many contributions to research in Newfoundland, we must disagree with his comments on glacial Lake Howley. We, among with other colleagues, regrettably have a long standing difference of opinion with Dr. Brookes regarding the re-interpretation of the late-glacial history of western Newfoundland. The publication of the Batterson *et al.* (1993) paper in the *Journal of Quaternary Science*, in which glacial Lake Howley was introduced as a feature of deglaciation in western Newfoundland,

generated a useful and informative discussion and reply (Batterson *et al.*, 1995; Brookes, 1995). New exposures of Quaternary sediment at the mouth of Deer Lake allowed for a continued discussion of late-glacial events in the Humber River valley (Batterson, 1997; Brookes, 1997). Subsequently, a reappraisal of exposures of Quaternary sediment by Bell *et al.* (2001) was also the subject of a discussion and reply (Bell *et al.*, 2002; Brookes, 2002).

Dr. Brookes' discussion of our current paper appears to have two main thrusts. Firstly, that glacial Lake Howley could not have drained through the Harrys River valley into northern St. George's Bay because this area was ice-covered at 12.6 ka.

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Secondly, that glacial Lake Howley was more likely a series of interconnected ice-marginal lakes rather than a single entity.

These are the same points that Dr. Brookes raised in his 1995 discussion, and which were discussed by Batterson *et al.* (1995). More recently, Bell *et al.* (2003) in their review of the late-glacial sea level history of St. George's Bay which incorporated 81 radiocarbon dates, including 11 previously unreported dates, concluded that: "The coastline of northern St. George's Bay was finally ice-free by at least 12.8 ka when RSL stood at 27 m asl." (p. 1066). This conclusion is entirely consistent with the drainage history of glacial Lake Howley.

The interpretations that we have offered are based on all the evidence collected to date (*e.g.*, Jukes, 1842; MacClintock and Twenhofel, 1940; Lundqvist, 1965; Brookes, 1974; Kirby, 1988; Grant, 1989a, b, 1991; Shaw *et al.*, 1995; Shaw *et al.*, 2000). We have considered several hypotheses throughout the past 10 years, including that suggested by Dr. Brookes, but feel that ours is a better fit for the data that are currently available. Interpretation of the evidence as supporting a single lake that drained into northern St. George's Bay prior to 12.6 ka seems reasonable, as assessed by our colleagues through the scientific review process.

We agree that evidence for glacial Lake Howley is fragmentary, which may explain why it escaped the attention of earlier workers. However, it has withstood a subsequent test of its validity, being consistent with regional reconstructions of deglaciation (*cf.* Bell *et al.*, 2003). Our hypothesis could be further tested through coring of any Quaternary sediments preserved beneath Grand Lake. We encourage the scientific community to undertake this challenge, and will gladly assist in any way possible.

We welcome any new data on the Quaternary geology of the west coast of Newfoundland, and invite interested researchers to visit the area, conduct their own independent research and draw their own conclusions on the existence, or otherwise, of glacial Lake Howley. It seems, however, that although glacial Lake Howley disappeared from the landscape some 12 000 years ago, it still remains firmly in our thoughts today.

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