# REPLY

PETER A. CAWOOD and JACK W. BOTSFORD
Department of Earth Sciences and Centre for Earth Resources Research, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X5

Stockmal and Waldron believe that our structural interpretation implies differing amounts of foreshortening to the north and south of the Bonne Bay cross-strike discontinuity. To the north of the discontinuity, they propose that we invoke extensive lateral transport, whereas to the south, they believe our model involves only vertical uplift of cover above a basement duplex wedge. Thus, they state that the steep fault along our proposed Bonne Bay cross-strike discontinuity should outcrop at the surface southeast of Bonne Bay. This scenario is valid only if the rock sequences north and south of the inferred discontinuity have indeed undergone significantly different amounts of foreshortening. We do not think this is the case, and nowhere in the paper did we say that the hangingwall sequence to the Long Range thrust has undergone extensive lateral transport. Elsewhere, Cawood and Williams (1988) have argued that transport along the thrust was limited. In addition, although the cover sequence south of the Bonne Bay cross-strike discontinuity has undergone vertical uplift, it would be wrong to think of this as simple passive uplift with no foreshortening. As stated in our paper, the sequence to the south is penetratively deformed, forming a cleavage fan with asymmetric folding and thrusting on the limbs of the fan. This sequence has clearly undergone foreshortening as well as vertical uplift. We consider that small amounts of differential movement that occurred across the discontinuity during Acadian deformation are in part taken up by a fault along the East Arm of Bonne Bay. Stratigraphic relations in the vicinity of Deer Arm of Bonne Bay, notably the absence of the Hawke Bay Formation between the Forteau Formation on the east side of Deer Arm and the main carbonate platform sequence on the west side, require the Long Range Thrust to continue south down the arm. The fault does not cross Bonne Bay, and we believe that it swings southeast at the mouth of Deer Arm and strikes at least some distance along the East Arm of the bay. Although the earlier mapping of Nyman and others (1984; see also Williams and others, 1984) does not show a fault in this position, their work did not attempt to account for the cutting out of stratigraphic units along Deer Arm.

Following Williams (1985), Stockmal and Waldron note the lack of evidence for any offset of rock units across Bonne Bay between Norris Point and Gadds Point. We agree with this observation, but the presence or absence of offset in this region is irrelevant to the argument about the nature of the Bonne Bay cross-strike discontinuity. The tickle lies west of and in the footwall of the Long Range Thrust, and hence no offset would be expected as part of any accommodation in differential movement between the Long Range Inlier and rock units farther south during

seismic lines west of Bay of Islands, have proposed that the cover sequence on the Port au Port peninsula has undergone extensive westward transport. In addition, they proposed substantial westward transport of basement cover sequences as the Long Range Inlier, Clearly, there is a fundamental dichotomy between crustal structure interpreted from surface geology, as presently mapped, and the seismic sections, as interpreted by Stockmal and Waldron (1990). We believe further work is needed before these differences can be resolved: ideally we would like to see a seismic section across the Long Range Inlier to establish whether or not seismic reflectors of the carbonate cover sequence extend eastward beneath basement.

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