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**Sedimentologic and structural studies of the Fredericton Trough west of Fredericton, New Brunswick**

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West of Fredericton, New Brunswick, the Fredericton Trough is dominated by the mid-upper Silurian Kingsclear Group (mainly Burtt's Corner Formation). Previous reports of this and other Silurian strata in the Trough have identified grey, argillaceous, fining-upward sandstone beds, occasionally with flute-like marks on their soles, plus extensive grey shale with graptolites and rare crinoid debris. Zonal fossils *Cyrtograptus linearis* and *Monograptus nilssonii* place the succession as mid-Wenlock to lower Ludlow. This has led to the interpretation of the strata as being the product of marine deep-water turbidity-current deposition. However, some sandstone beds investigated here do not fine upward, and contain wave ripples and wave-modified current ripples which indicate that at least some of the succession was deposited in shallow water, above storm wave depth, and possibly above low water. This suggests a significant marine regression during the Ludlow Stage, and that the region formed part of a distal shelf, rather than basal continental slope and rise as envisioned in numerous tectonic reconstructions of the region for these times.

Deformation involves two phases of folding and development of related fabrics. A predominantly bedding-parallel foliation ( $S_{0-1}$ ) is related to rare  $F_1$  folds, and these features are refolded by mainly upright, open to tight  $F_2$  folds with a related slaty cleavage ( $S_2$ ). Deformation seems to have been initiated while these sedimentary rocks were only partly dewatered, and isolated examples of non-bedding parallel  $S_1$  are related to loading structures. Form-surface maps of bedding through the area illustrate the large-scale form of the  $F_2$  folds (hinges are strongly curvilinear) and identify zones of stronger deformation where  $F_2$  limbs are overturned,  $F_2$  hinges are broken out, and there is evidence of detachments, probably thrusts. The  $F_2$  folds are cross-cut by lamprophyre dikes of Pridoli age indicating that the entire history, from deposition to dike intrusion, represents less than 5 million years.