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**Evidence for early deformation and its timing in the  
Tournaisian rocks of southeastern New Brunswick**

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In the Hillsborough area of southeastern New Brunswick three formations in the Carboniferous Horton and Sussex groups (Tournaisian - Albert, Weldon and Round Hill formations) contain features consistent with deformation characterized by bedding-parallel movement. These features include minor folds, often with box-like profiles, minor folds with strongly curvilinear hinge lines, small thrust faults, bedding-parallel shear zones and vein arrays representing detachments. Deformation is usually characterized by two sets of folds with an overprinting relationship. F1 folds are intimately related to the bedding-parallel motion, taking the form of hanging-wall and footwall structures on thrusts, recumbent folds with sheared limbs, and chevron fold trains with overtightened closures and minor fault-related hinge collapse. F2 folds overprint on these features folding bedding-parallel shear zones. Kinematic analysis of the F1 folds and related shear sense indicators in bedding-parallel shear zones reveals a consistent top to the south movement. F2 refolding, on structures that trend southwest implies a transpressional regime with north-south shortening and a right-lateral strike-slip component.

The occurrence of folds in Tournaisian rocks predating the unconformity below the Viséan Windsor Group has been known for some time. We present evidence here that an angular unconformity beneath the latest Tournaisian-early Viséan Hillsborough truncates both F1 and F2 structures. A more constrained timing for this deformation hinges on an interpretation of the Peck Creek felsite, a shallow felsic intrusion with features characteristic of magma-wet sediment interaction, emplaced along a thrust fault. Recrystallized quartz textures in this body are characteristic of plastic deformation at elevated temperatures, implying deformation whilst the body was still hot. If the correlation of this felsite with the Boyd Creek Tuff is correct, then this deformation occurred while the Weldon Formation was still being deposited.