

Carboniferous to Triassic Fault-Styles and Sedimentation, Southern New Brunswick

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Mississippian to Triassic sediments exposed on the south coast of New Brunswick between Emerson Creek and St. Martins provide a detailed record, both of fault-movement on the margins of the Cumberland Basin, and resultant sedimentation. Windsor Group (Visean) marine limestone rests unconformably on Precambrian (Coldbrook Group) basalts and is unconformably overlain by coarse Hopewell Group (Namurian) conglomerates, deposited on SE-prograding alluvial fans sourced from the upfaulted basin margin. Coarse grey sandstones of the Boss Point Formation (Westphalian A) were deposited by relatively low-gradient meandering rivers flowing to the S and SE. Their relationship to the underlying Hopewell is unknown but suggest reduced topographic relief. Boss Point sandstones pass conformably up into red siltstones and sandstones of the Tynemouth Creek Formation. This formation coarsens upward into sandstones and conglomerates sourced from the SE. The Carbonifer-

ous strata were deformed into large-scale N-S to SW-NE trending recumbent folds that verge to the W, NW and SE. Folding was accompanied by thrusting towards the W and NW which locally emplaced Precambrian basalts over Boss Point and Tynemouth Creek strata. Depositional patterns changed radically in Late Westphalian A to B time when NW-directed thrusting began on the southern margin of the basin. NW-prograding alluvial fans (Tynemouth Creek Fmn.) were shed off the advancing thrust sheets, which eventually over-rode their own detritus. Following Late Pennsylvanian-Permian erosion, the area underwent major subsidence (possibly on reactivated normal faults on the northern margin of the basin) and thick alluvial sandstones and conglomerates were deposited during the Triassic. A post-Triassic extensional regime, related to Atlantic rifting resulted in normal faulting on at least one reactivated Carboniferous thrust fault.