

Late Middle Devonian Tectonic Activation of the Appalachian Basin, Western New York and Northwestern Pennsylvania, Gary G. Lash, Department of Geosciences, State University of New York–College at Fredonia, Fredonia, NY 14063, lash@fredonia.edu

The Middle and Upper Devonian succession of the Appalachian Basin of western New York (WNY) and northwestern Pennsylvania (NWPA) provides a record of repeated eustatic events. However, analysis of more than 500 wireline logs from this region of the basin reveals a strong but localized tectonic imprint that occurred over ~ 2 MY in the early half of the Givetian. This activity, initiated prior to deposition of the Tully limestone, resulted in as much as 40 m of the Moscow shale in the northeastern Chautauqua County–Cattaraugus County region of WNY. This was followed quickly by accumulation of a shaly limestone over the eroded Moscow shale. Soon after this, a second uplift event removed much of the limestone and perhaps more of the underlying Moscow shale. The Tully limestone was deposited over the eroded shaly limestone and Moscow shale and locally on the underlying Tichenor limestone. The final phase of uplift resulted in erosion of the Tully limestone over much the same region of the basin that the Moscow shale was most deeply eroded. The Tully limestone and its equivalent unconformity is sharply overlain by deposits of the Genesee Group, notably the Genesee black shale, which mark the onset of Tectophase III and related collapse of the basin. However, results of this study suggest that the WNY-NWPA area of the Acadian foreland basin experienced the effects of thrust load-induced dynamics (i.e., development of a flexural welt) before widespread maximum subsidence of the basin.