

## A suggestion from mid-coast Maine correlation enthusiasts

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Along the Maine coast, beneath Quaternary cover, between expanses of water, and among large volumes of plutons, lie tantalizing scraps of metamorphosed and deformed stratified rocks from Precambrian to Early Devonian age. A few distinctive rock units, traceable (though intermittently) long distances along strike, are generally agreed to correlate into southern New Brunswick: Bucksport and Flume Ridge formations (Silurian); Appleton Ridge and Digdeguash formations (L. Silurian); Penobscot and Calais formations (U. Cambrian–L. Ordovician); Dennys-Edmunds and Long Reach formations (U. Silurian). A few other units of similar lithology and age that appear to be more-or-less on strike, but which have more local occurrence, probably correlate: Megunticook and Crocker Hill formations (Cambrian); Castine Volcanics and Annidale Group volcanic rocks (U. Cambrian–L. Ordovician); Ellsworth, Queen Brook (at type locality), and Mosquito Lake Road formations (U. Cambrian).

Problematic rocks of restricted exposure near Penobscot Bay, Maine, include Seven Hundred Acre Island, Islesboro, Rockport, and Benner Hill sequences. Though mutually isolated by faults, these sequences together span a significant portion of Late Precambrian through Late Ordovician time, with apparently (?) no overlap in age. We take them collectively to represent a single fragmented continental basement, whose stratigraphy differs from the Massabesic Gneiss and Miramichi sections to the north and west and from the Caledonia terrane to the southeast. Curiously, this array of

rocks near Penobscot Bay includes individual units with presumed protoliths like certain units in the Brookville and New River belts, across strike to the east of the Silurian volcanic belt.

We suggest a unified stratigraphic model in which amphibolite, quartzite, schist, and marble intruded by pegmatite of Seven Hundred Acre Island (=? Brookville Gneiss) are overlain unconformably by Islesboro and Rockport (=? Ashburn), then unconformably by Eocambrian(?) grey sandstone with conglomerate or olistostrome of Simonton Corners (=? Martinon) grading upward into Megunticook. If the Battie conglomerate and quartzite = Matthews Lake conglomerate and quartzite, the Megunticook may partly overlie and partly relate by facies transition to the Ellsworth. Volcanic rocks at the base of the Penobscot would be distal Castine. Overlying Ordovician units (Mosquito Harbor =? Woodland; Hart Neck =? Kendall Mountain; Benner Hill) are missing to the east beneath a Silurian unconformity.

By this model, facies variation, extensional deformation, localized volcanic-arc and back-arc magmatism, thrust tectonics, and strike-slip and dip-slip faulting, all of which are known to be present, account for existing differences in a coherent Late Precambrian-Ordovician terrane whose significantly mangled and shuffled parts extend from the Caledonia fault through the St. Croix belt.