

## ABSTRACT

The slate belt in North Carolina contains two bimodal volcanic and volcanoclastic rock sequences. The Virgilina sequence comprises most of the slate belt, and its development was complete by about 600 Ma. The Albemarle sequence is in the Uwharrie Mountains, and its evolution spanned the Precambrian–Cambrian boundary. Compositions of both sequences show that they were formed above subduction zones.  $T_{DM}$  values about 100 m.y. older than eruption ages suggest that Virgilina rocks formed in a primitive intra-oceanic island arc. Conversely,  $T_{DM}$  ages several hundred m.y. older than eruption ages are consistent with formation of the Albemarle rocks above a subduction zone on a newly formed continental margin. We propose: the Albemarle sequence formed along the continental margin of South America after it rifted from Rodinia; the Albemarle sequence then rifted away from South America; the Albemarle and Virgilina sequences joined to form the slate belt in the ocean between South America and North America; the slate belt then accreted to North America by subduction of the intervening ocean beneath the slate belt.