The Late Ordovician-Early Silurian Chopawamsic fault bisects early Paleozoic rocks of the western Piedmont of Virginia into a probable Laurentian accretionary complex, the Potomac terrane (Pt), to the west and an Iapetan arc of unknown identity to the east, the Chopawamsic terrane (Ct). These terranes have traditionally been interpreted to represent a cohesive arc-forearc system with the Chopawamsic terrane deformed as part of the Iapetan margin system. Data from the Arvonia successor basin may indicate that the Potomac terrane is derived from Laurentian crust created in the Grenville orogeny. The lack of any Ordovician input indicates that the metamorphic system recorded in the Potomac terrane probably wasn’t closed with the Chopawamsic arc. The presence of Ediacaran to Cambrian detrital zircons in some samples may represent the depositional age of the Potomac terrane.

Chopawamsic Terrane—Detrital zircons within the Chopawamsic Formation are strongly zoned with peak values at 406, 457, and 451 Ma. These ages likely record syn-depositional recycling of Chopawamsic volcanic rocks, which have been dated elsewhere at 451 Ma (Horton et al., 2010) and 471 Ma (Jackson et al., 2015). The geographic distribution of specific age populations within the Chopawamsic arc is consistent with potential distinct phases of volcanism. It seems that the age of volcanism recorded in the Chopawamsic Formation, however, is more geotectonically significant, rather than geographically significant, within the arc. Although only one sample shows significantly different volcanic input, it is important because it is unique for the Chopawamsic arc. These differences in volcanic ages may be representative of a Mesoproterozoic basin to the Chopawamsic arc (Pavlik et al., 1981; Colby et al., 2000).

Strock Rocks—This sample shows the most variabiliry amongst the data set. The peak mode at 125 Ma likely reflects expansion of the Gondwana craton, but the distribution of detrital zircons in this sample is consistent with input from a Gondwanan source.

Potomac Terrane—These samples are dominated by c. 1.0–1.2 Ga detrital zircons. This range in ages is consistent with the sandstone compositions of the Potomac terrane that are proximal to the Chopawamsic arc. The presence of Ediacaran to Cambrian detrital zircons in some samples may represent the depositional age of the Potomac terrane.

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