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# What is it underneath the core of the Asturian Arc?: Detrital mica ages finish Eduard Suess tale

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One of the most debated issues in the geology of western Europe is the nature, provenance and age of the basement under the core of the Asturian Arc (first described by Suess in 1888), which shed sediments into the early Paleozoic passive margin basins of Northern Gondwana. Recent detrital zircon U-Pb dating studies in Paleozoic rocks of NW Iberia have provided fresh arguments with which this issue can be approached under a different light. In addition to detrital zircon based studies, Ediacaran and Cambrian sedimentary rocks from NW Iberia (sampled in the core of the Asturian or Ibero-Armorican Arc) contain un-metamorphosed detrital micas whose 39Ar-40Ar age spectra suggest an Amazonian-Middle American provenance for the original sediments. The Ediacaran sample contained only Neoproterozoic micas with ages ranging from 590 to 783 Ma whereas the Cambrian sample contained three age groups: Neoproterozoic (550-640 Ma, Avalonian-Cadomian-Panafrican tectonothermal events), Mesoproterozoic-Neoproterozoic boundary (ca. 920-1060 Ma, Grenvillian-Sunsas events) and late Paleoproterozoic (ca. 1580-1780 Ma, Rio Negro events). Comparison of these ages with previously published detrital zircon age data from the same sedimentary formations support the hypothesis that the Neoproterozoic basins of NW Iberia were located in a peri-Amazonian realm, possibly in the vicinity of Oaxaquia where the sedimentary input was dominated by local peri-arc sources. Tectonic slivering and strike-slip transport along the northern Gondwanan

margin affected both the basins and fragments of basement that were transferred from Amazonian to northern African realms during the latest Neoproterozoic earliest Cambrian. Exhumation/erosion of these basement sources shed detritus to the Cambrian basins, in addition to those sourced in the continental mainland. The apparent dominance of “Rio Negro” aged micas in the Cambrian sandstone suggests the presence of a non-exposed basement of that age under the core of the Ibero-Armorican arc.