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Strike-slip accomodation during the development of the Cantabrian and Central-Iberian oroclines: 40Ar*/39Ar geochronological ages of major shear zones.

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One of the most striking features found in the West European Variscan Belt is a large strikeslip shear zone/fault system, characterized as "Late-Variscan", that runs parallel to the broad structural trends around the Iberian Armorican Arc. 40Ar*-39Ar ages of micas grown during
fabric development in five shear zones of this system (Traguntia-Juzbado; Porto-Tomar; Malpica-Tuy, Punta Langosteira and Ricobayo, both dextral and left lateral, have yielded ages that, within error, cluster at 307 Ma, suggesting that their development took place within the time frame of oroclinal bending constrained by paleomagnetism and structural data, that is to say, coeval with the formation of the Ibero-Armorican Arc.
According to our new data and other data from the literature, we interpret the development of the strike-slip shear zone system and the origin of the magmatic pulse at ca 307 Ma as being related to the initiation of the orocline development. These new ages constrain deformation in the outer arc to be penecontemporaneous with thrust-sheet rotations in the inner arc Cantabrian Zone. The 307 Ma strike-slip shear-zones are inferred to have accommodated the vertical axis crustal or lithospheric-block rotations needed to accommodate oroclinal bending. Coeval granitoid ages, clustering at 307 Ma and located in Cantabrian orocline outer arc represent decompressive melting during the mechanical thinning of the mantle lithosphere below the outer arc during bending.