

Hercynian deformation and metamorphism in the Cordillera Oriental of southern Bolivia

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The Cordillera Oriental is part of the back-arc of the Central Andes. In southern Bolivia it consists of a basement built up of more than 8000 m of Cambro-Ordovician sediments, which is, in places, unconformably overlain by a cover of Cretaceous-Palaeocene and/or Late Tertiary rocks. The basement had already undergone a pre-Andean orogenesis in Palaeozoic times, documented by a slaty cleavage, low-grade or very low-grade metamorphism, and wide-spanned folds. For southern Bolivia the age of that orogenesis has been discussed controversially up to now. Coming from northern Bolivia, an Eohercynian/Chanic event (Late Devonian/Early Carboniferous) is believed to have been the main Palaeozoic event, whereas farther to the south, in northwestern Argentina, the Late Ordovician Oclóyic orogenesis is preferred.

We have, now, dated 9 samples of Ordovician schists from southern Bolivia with the K/Ar method, measuring phyllosilicates of the grain-size classes < 2 μ m and < 0.2 μ m. The data have been interpreted in relation to the metamorphic degree of each sample. Most of the ages cover the 310-280 Ma interval and, thus, indicate a Late Hercynian event. Traces of orogenic processes of about that age are known from different parts of the Central Andes, but they are, at present, not sufficient to sketch a coherent picture of a Late Hercynian orogen in that region.