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OPHIOLITES IN THE PERUVIAN ANDES: PRELIMINARY DATA

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A discontinuous, NW-SE trending, belt of scattered ultramafic and mafic (UM / M) occurrences crops out in the Cordillera Oriental for about 250 km (from ~ 9º 30' to ~11º 30' S, Depts. Huánuco and Junín). These rocks had been previously understood as pre-Cambrian intrusive bodies (dikes, sills or diapirs), but recent studies on the Tapo Massif (TM, southernmost occurrence, Tarma province) exclude this hypothesis, showing its allochtonous emplacement and suggesting an alternative interpretation as part of a dismembered ophiolite (Castroviejo et al., 2010). This interpretation is supported by geochronological and petrological data. The TM, the only known chromite source in Peru, is a fragment of Neoproterozoic (~ 718 Ma, Tassinari et al, 2010) oceanic lithosphere, subject to Ordovician (~ 450 Ma, íbid.) high-P metamorphism (Willner et al., 2010), and then thrust upon the siliciclastic sediments of the Lower Carboniferous Ambo Group.

The other known UM / M occurrences, as the Acobamba bodies (A, Tarma) or the Huancapallac, H, and Andas-Raccha, AR, massifs (Huánuco), have also been mapped and share the following features with the TM: UM / M protolith composition, strong metamorphic overprint, intensive pre-Andean ductile deformation, allochtonous emplacement, and overprint by Andean cycle brittle deformation. Some local differences also exist, as: (i) the absence of chromite ores to the north, where talc has been mined instead; (ii) the varying relative proportions of UM & M lithologies (only UM, mainly serpentinites, in H; mainly M, amphibolites, in AR); (iii) the nature of the host-rocks: while the TM is thrust onto upper Palaeozoic non-metamorphic sedimentary rocks (Ambo Group), the A, AR and H massifs are thrust on metamorphic formations of the Marañón Complex. Data strongly support an interpretation as fragments of a dismembered ophiole belt defining a suture within the Cordillera Oriental. Some features as the relative scarcity of M protoliths or the lack of the typical sheeted dyke complex, which do not fit the ideal "Penrose Conference profile", could be explained by tectonic dismembering but they may more likely be primary, suggesting e.g. a Ligurian or Franciscan type of ophiolite (Dilek, 2003). Summarizing, these data are consistent with current ideas about the late evolution of Rodinia, and imply a Neoproterozoic rifting along its western margin (a protracted event starting further south), and an Ordovician collision (possibly with the Paracas terrain, as proposed by Ramos, 2009) affecting the Andean basement.

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