# Reevaluation of Leonian an Liberian events in the geodynamical evolution of the Man Rise (West African Craton)

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The Leonian (3300-3000 Ma) and Liberian (2900-2700 Ma) events are the most remarkable magmatic and tectono-metamorphic events of the Archean domain of the Man Rise. Naturally, the Liberian overprints very often the Leonian and sometimes obliterates it. In Ivory Coast, the in-situ dating by LA-ICPMS of zircons of the charnockite of Mangouin (MANG) and the augen orthogneiss of Lagoulalé (LAG) allowed to revalue the ages of these two tectono-metamorphic events. The charnockite represents the paroxysm of Liberian metamorphism whereas the augen orthogneiss would be set up at the end of this tectono-metamorphic event. The age of the charnockite of Mangouin is 2798 ± 7 Ma and that of the augen orthogneiss of Lagoulalé is 2794 ± 12 Ma. These ages are in agreement with previous geochronological data obtained by TIMS single-grain evaporation (Kouamelan et al., 1997). However, we note a Leonian inheritance at 3121 ± 37 Ma in the heart of a grain of zircons of the augen orthogneiss. This inheritance indicates that the charnockite of Mangouin and the augen orthogneiss of Lagoulalé arise, either partially, or totally, from the melting of Leonian formations. The Nd model age at 3250 Ma for these rocks is in agreement with this inheritance. The zircons of MANG as those of LAG have high Th/U ratio (> 0.2); they are thus of magmatic origin. The interactions between Archean and Proterozoic (Birimian) formations are more and more highlighted. We suggest that they took place initially in the context of rifting of the Archean proto-continent between 3200 and 2700 Ma. During this period, oceanic crust and a volcanic arc system associated with subduction zones are generated and are recycled later by Burkinian orogeny which is going to set up the Dabakalian magmas between 2500 and 2200 Ma (early Birimian).

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