

CRUSTAL THICKENING AND AULACOGEN SYSTEMS OF THE CRATONIC TECTONICS IN PROTEROZOIC TIME

QIAN XIANGLIN

Evolution of the cratonic blocks including Sino-Korean craton in the Proterozoic is in genetic relation with the crustal thickening which was inducing a long term slow uplifting. This generated the Mid-Proterozoic rifting aulacogen systems occurred in cratons of Laurasia and even in India. The large area of erosion surface taken place beyond aulacogens became a great hiatus to form the unconformity in geology between the crystalline basement and the platform sedimentary cover, which mostly are of the Phanerozoic overlain on the Archean rock assemblages, as Hudsonian in the North American, Riphean in the East European and Luliang in the Sino-Korean cratons. These might be elucidated as the result of vertical thickening processes with horizontal shortening in deep crust versus the tectonic extension integrated into aulacogens in upper level crustal deformation in the Mid-Proterozoic, or even earlier since early Proterozoic, which in general is a permanent agency in continental crust through time to maintain the cratonic blocks to be survived in growth with the low negative gravity anomalies in continents. The high-pressure granulite assemblages and the dominant TTG rocks in lower crust are noticeable in occurrence connecting with the crustal thickening, differing genetically from the localities of the collisional plate boundary in shallow depth. It is quite updated, in fact, in understanding the continental dynamic processes in present time and in clarifying the survivals of the cratonic blocks off from elimination by general erosion. The thickening processes of the cratonic segments might elaborate the tectonics of assembly and dispersion of breakup of the supercontinent.