

TWO PRE-RODINIA SUPERCONTINENTS?: EVIDENCE FROM THE RECONSTRUCTION OF GLOBAL 2.1-1.8 GA OROGENS AND ASSOCIATED CRATONS

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Reconstructions of late Proterozoic supercontinents have revealed that 2.1-1.8 Ga orogens occurred on nearly every continent and thus are considered to represent a global orogenic event, which produced a large number of linear mobile belts welding together the Archaean cratons, e.g. the Transamazonian orogen of South America; the Eburnean and Limpopo orogens of Africa; the Trans-Hudsonian, Penokean, Wopmay and Ketilidian orogens of North America; the Svecofennian and Kola-Karelian orogens of Baltica; the Nagssugtoqidian orogen of Greenland; the Capricorn orogen of Western Australia; the Transantarctic Mountains orogen of Antarctica, and the Trans-North China orogen of China. Lithological, structural and metamorphic studies show that most 2.1-1.8 Ga orogens developed as a result of the collision between two Archaean continents. Correlations using lithological, structural, metamorphic and geochronological data, together with palaeomagnetic reconstructions of these orogens and associated Archaean cratons, strongly suggest the existence of two pre-Rodinian supercontinents. One comprises the major Archaean cratons which are now located in the circum-South Atlantic region, including the West African, South American and possibly the Western Australian, Kalahari and Indian shields; herein referred to as the South Atlantic (SA) Supercontinent. The other consists mostly of the major cratons in the circum-North Atlantic region, including the North American, Baltic and Greenland cratons and possibly also the Siberian, Antarctic and North China cratons; herein referred to as the North Atlantic (NA) Supercontinent. The final amalgamation of these two pre-Rodinian supercontinents during the Late Mesoproterozoic (Grenvillian times) resulted in the assembly of the Rodinia supercontinent.