

MESOPROTEROZOIC OROGENIC SYSTEMS IN SOUTHERN LAURENTIA

VAN SCHMUS, W. R., Department of Geology, University of Kansas, Lawrence, Kansas, USA

The Paleoproterozoic in Laurentia closed with a major period (1.9 to 1.6 Ga) of cratonic amalgamation and accretion of juvenile orogenic terranes. At 1.6 Ga Laurentia may have been part of a larger supercontinent, since several 1.6 Ga orogenic belts are now truncated along its SE margin. The first geon (100 m.y.) of the Mesoproterozoic was quiet, with the possible exception of rifting to form a new SE margin that extended from W Texas to Labrador. Soon after 1.5 Ga several tectonic regimes developed: a) intraplate A-type magmatism that involved most 1.9-1.6 Ga crust in southern Laurentia (SW U.S. and midcontinent), b) extensive sedimentation in the NW to form the Belt basin, and c) accretion of juvenile terranes along the SE margin. All three were probably linked as part of a major geodynamic system around Laurentia from 1.5 Ga to 1.0 Ga. Rift-related volcanics in the Belt basin, A-type plutons and batholiths in the midcontinent, and continental margin magmatism and orogeny in Labrador all began about 1.48-1.46 Ga. A second pulse of mafic magmatism in the Belt basin and A-type magmatism in the south-central U.S. occurred about 1.38-1.36 Ga. More or less continuous terrane accretion continued from Labrador to Texas from 1.35 to 1.1 Ga, culminating in the Grenville collision and formation of Rodinia about 1.0 Ga. The Midcontinent Rift System developed about 1.1 Ga in the north-central U.S., but its development was aborted due to the Grenville collision.