

The Ross Active Margin of Antarctica

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The period of Earth history spanning the late Proterozoic to early Paleozoic is marked by the breakup of one supercontinent, Rodinia, and the assembly of another, Gondwanaland. The rocks of the Ross orogen, exposed throughout the length of the Transantarctic Mountains, record the manifestations of this interval as they occurred along the Pacific margin of Antarctica.

The following conclusions will be developed in the presentation: 1) Deposition in the Ross orogen appears to have begun by around 750 Ma. 2) Deformation appears to have begun in the Victoria Land sector before ca. 550 Ma when the oldest plutonism is recorded. 3) Ages of detrital zircons in Goldie Formation indicate that deposition occurred south of Byrd Glacier till after ca. 600 Ma. It is suggested that the source was volcanic rocks in SVL. 4) Deformation of Goldie and La Gorce Formations focused in a zone of oblique convergence adjacent to the craton with only minor warping outboard of this region. 5) Erosion following this deformation occurred prior to deposition of Early Cambrian Shackleton Limestone. 6) Extension produced the bimodal volcanic suite of the Liv Group. 7) This period marked a transition from one of oblique convergence to orthogonal subduction along the Transantarctic Mountains. 8) Subsequent deformation affected rocks throughout the Transantarctic Mountains. 9) Widespread plutonism occurred during the waning stages of deformation and subsequent to it until ca. 500 Ma. 10) The diminishing intensity of both deformation and plutonism in the direction of the Pensacola Mountains may indicate that they were close to a pole of rotation for convergence between the Pacific and Antarctic plates.