ZHAO Guochun, 2016. Assembly, Accretion and Break-up of the Paleo-Mesoproterozoic Columbia (Nuna) Supercontinent: Records in the North China Craton. *Acta Geologica Sinica* (English Edition), 90(supp. 1): 50.

Assembly, Accretion and Break-up of the Paleo-Mesoproterozoic Columbia (Nuna) Supercontinent: Records in the North China Craton

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Columbia (Nuna) is a Paleo-Mesoproterozoic supercontinent that was assembled during global 2.0–1.8 Ga collisional events, underwent long-lived, subduction-related accretion at key continental margins in the period 1.8-1.3 Ga, commenced to fragment ~1.6 Ga ago and finally broke up at ~1.3 Ga. Like most other cratonic blocks (Laurentia, Baltica, Siberia, Amazonia, West African, South Africa, India, Australia and Antarctica), the North China Craton records the history of assembly, accretion and breakup of the Columbia (Nuna) supercontinent. New data indicate that the Archean to Paleoproterozoic basement of the North China Craton was assembled by microcontinental blocks along three Paleoproterozoic collisional belts in the period 1.95-1.85 Ga. Following this final assembly, the interior of North China Craton underwent post-collisional and/or anorogenic extension, leading to the widespread emplacement of 1.80-1.75 Ga mafic dyke swarms, especially in the areas close to the Trans-North China Orogen, whereas the southern margin of the craton may have experienced Andes-type accretion during Paleo-Mesoproterozoic time, forming the Xiong'er volcanic belt. In the late Mesoproterozoic, the northern margin of the North China Craton underwent a rifting event that led to separation of the craton from other cratonic blocks of the supercontinent Columbia, forming the 1.4-1.2 Ga Zhaertai -Bayan Obo rift zone and associated ~1.35 Ga mafic sills along the northern margin of the craton. These data indicate that in the Columbia (Nuna) supercontinent, the southern margin of the North China Craton may have faced an open ocean, whereas its northern margin was most likely connected to another continental block.

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