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Anatomy of a basal sauropodomorph dinosaur from the Early Jurassic Hanson Formation of Antarctica

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The anatomy of a basal sauropodomorph (Dinosauria: Saurischia) from the Early Jurassic Hanson Formation of Antarctica is described in detail. The material includes a distal left femur and an articulated right pes, including the astragalus, distal tarsals, and metatarsals I-IV. The material is referable to Sauropodomorpha and represents a non-eusauropod, sauropodomorph more derived than the most basal members of Sauropodomorpha (e.g., *Saturnalia, Thecodontosaurus, Efraasia*, and *Plateosaurus*) based on a combination of plesiomorphic and derived character states. Several autapomorphies present in both the femur and metatarsus suggest that this material represents a distinct sauropodomorph taxon, herein named *Glacialisaurus hammeri* gen. et sp. nov. Some of the derived characters present in the Antarctic taxon suggest affinities with *Coloradisaurus* and *Lufengosaurus* (e.g., proximolateral flange on plantar surface of metatarsal II, well-developed facet on metatarsal II for articulation with medial distal tarsal, subtrapezoidal proximal surface of metatarsal III). Preliminary phylogenetic analyses suggest a close relationship between the new Antarctic taxon and *Lufengosaurus* from the Early Jurassic Lufeng Formation of China. However, the lack of robust support for the taxon s phylogenetic position, and current debate in basal sauropodomorph phylogenetics limits phylogenetic and biogeographic inferences drawn from this analysis. The new taxon is important for establishing the Antarctic continent as part of the geographic distribution of sauropodomorph dinosaurs in the Early Jurassic, and recently recovered material from the Hanson Formation that may represent a true sauropod, lends support to the notion that the earliest sauropods coexisted with their basal sauropodomorph relatives for an extended period of time.

Key words: : Dinosauria, Sauropodomorpha, Prosauropoda, phylogeny, paleobiogeography, Jurassic, Hanson Formation, Antarctica.

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