



## **The authorship of *Astrodon* (Dinosauria, Sauropoda): Leidy, 1865, not Johnston, 1859.**

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## NOMENCLATURAL NOTE

### The authorship of *Astrodon* (Dinosauria, Sauropoda): Leidy, 1865, not Johnston, 1859.

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**Abstract.** The authorship of the sauropod dinosaur genus *Astrodon* is frequently cited as Johnston, 1859, and its type species *Astrodon johnstoni* is usually cited as Leidy, 1865. Although Johnston's publication does satisfy the *Code's* requirements for published work, the lack of description means it does not satisfy the criteria of availability in Article 12 for names published before 1931. *Astrodon* was a nomen nudum until it was made available by Leidy in his subsequent description of the nominal genus with its single new nominal species. The correct authorship of both the genus *Astrodon* and its type species *Astrodon johnstoni* is therefore Leidy, 1865.

**Keywords.** Nomenclature; Authorship; Dinosauria; Sauropoda; *Astrodon*; Cretaceous.

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*Astrodon johnstoni* Leidy, 1865 is a sauropod dinosaur from the Early Cretaceous Arundel Formation of Maryland, eastern United States. The holotype (YPM VP 798) consists of one complete tooth and a section of a second tooth, deposited in Yale University's Peabody Museum of Natural History (New Haven, Connecticut, United States) (Leidy, 1865; D'Emic, 2013). The genus *Astrodon* has a long and convoluted taxonomic history, having at times been synonymized with *Pleurocoelus* Marsh, 1888 (see D'Emic, 2013 for history). This culminated with Carpenter & Tidwell's (2005) review of sauropod material from the Arundel Formation, in which they concluded that only a single species of sauropod was present in the formation, applying the name *Astrodon johnstoni* to all material as the oldest available name given to an Arundel sauropod. Carpenter & Tidwell (2005) diagnosed *Astrodon johnstoni* based on various skeletal features, none of which were related to the teeth, and therefore none of which were present in the holotype. Though *Astrodon johnstoni* has been regarded as a nomen dubium in the last decade (D'Emic, 2013), it remains a historically and culturally significant taxon as one of the first dinosaurs discovered in the Americas, and it was designated as the State Dinosaur of

Maryland (Maryland Code, General Provision § 7-322). Additionally, its holotype remains the first specimen indicating that sauropod dinosaurs were present in this region during the Early Cretaceous, and the first sauropod discovered in the Americas. (Kranz, 2004).

Though the authorship of the name *Astrodon* is correctly cited as Leidy, 1865 by Neave (1939) and in the online data repository IRMNG (2021a, b) and others that compile IRMNG data, various scientific publications after 1939 regarding the genus have misattributed its authorship to Johnston (e.g., Ostrom, 1970; Galton, 1981; Kranz, 1989; D’Emic, 2013). Carpenter & Tidwell (2005) confusingly stated that “the genus was proposed in 1859 by Christopher Johnston” and also that “Leidy is considered the author.” Leidy (1865) himself attributed the genus to Johnston. Given the apparent confusion, this note serves to clarify the correct authorship.

The name *Astrodon* was first mentioned by Johnston (1859) in a short paper discussing the utility of teeth in paleontology. In discussing Cretaceous reptiles, Johnston noted that “among the most remarkable of these last [discoveries] are the teeth of a thecodont saurian, which we have named *Astrodon*, found near Bladensburg.” (Italics added here; the original publication is inconsistent in its use of italics for genus names.) There is no further description or illustration of *Astrodon* in this publication, nor is there a bibliographic reference to a previously published illustration or description.

The *Code* (ICZN, 1999) Article 12.1 requires that “every new name published before 1931 [...] be accompanied by a description or a definition of the taxon that it denotes, or by an indication.” Johnston (1859) did not provide any description of *Astrodon* beyond “thecodont saurian” (roughly equivalent to the modern clade Archosauriformes), simply noting which broad group the two teeth belong to. The only other information provided is the type locality (“near Bladensburg” [Maryland]) which, per Article 12.3 does not constitute a definition, description, or indication. Since no description, definition, or indication as defined in Articles 12.2 and 12.3 is present, Johnston’s (1859) publication does not make *Astrodon* an available name.

Leidy (1865) used the new species name *Astrodon johnstoni* in combination with multiple illustrations of the type teeth. This constitutes an indication for the species under Article 12.2.7 (ICZN, 1999). Therefore, both *Astrodon* and *Astrodon johnstoni* became available upon the publication of Leidy’s (1865) work.

As the earliest *Code* compliant description of both *Astrodon* and *Astrodon johnstoni* was published by Leidy (1865), the correct authorships are *Astrodon* Leidy, 1865 and *Astrodon johnstoni* Leidy, 1865. The two teeth are together the holotype by monotypy, and *Astrodon johnstoni* is the type species by monotypy.

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