



A redescription of '*Megalosaurus*' *hesperis* (Dinosauria, Theropoda) from the Inferior Oolite (Bajocian, Middle Jurassic) of Dorset, United Kingdom

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Abstract

'*Megalosaurus*' *hesperis* from the Inferior Oolite (Bajocian, Middle Jurassic) of Dorset, UK is redescribed. Several features of '*M.*' *hesperis* demonstrate that it is distinct from the lectotype dentary of *Megalosaurus*: an enlarged, subcircular third alveolus and subcylindrical, anteriorly inclined anterior dentary teeth; an anterior Meckelian foramen located almost directly anterior to the posterior Meckelian foramen; low interdental plates; and a prominent lip bounding the Meckelian groove ventrally, anterior to the Meckelian fossa. Therefore a new genus, *Duriavenator*, is erected to form the new combination *D. hesperis*. *D. hesperis* possesses two autapomorphies of the maxilla: a deep groove on dorsal surface of the jugal process containing numerous pneumatic foramina; and an array of small foramina in the ventral part of the articular surface for the premaxilla. Several features confirm the tetanuran affinities of *D. hesperis*: a prominent anterior process of the maxilla; the presence of band-like dental enamel wrinkles; the maxillary 'fenestra' is present but takes the form of an imperforate fossa (a spinosauroid synapomorphy); and the parodontal groove is wide anteriorly, defining a distinct gap between the interdental plates and the medial wall of the dentary (a synapomorphy of Spinosauridae + Megalosauridae). Older records of tetanurans have been proposed, but most of these have been refuted and detailed re-examination of other early reports is warranted to establish the date of origin of this clade. An early Middle Jurassic origin of tetanurans is preferred.

Key words: *Duriavenator*, tetanuran origins, dinosaur, Theropoda, *Megalosaurus*

Introduction

The Middle Jurassic saw the origin of Tetanurae, a diverse clade of theropod dinosaurs that dominated predatory niches in dinosaurian ecosystems until the end of the Cretaceous, a time span of around 150 million years, and gave rise to modern birds (Rauhut 2003; Holtz *et al.* 2004). Unfortunately, the remains of Middle Jurassic theropods are rare and comprehensive descriptions are only available for the most fragmentary taxa (Allain 2001, 2002, 2005a, b; Allain & Chure 2002; Rauhut 2005). Consequently, the ecology and evolution of early tetanurans is poorly understood. Middle Jurassic theropods are known from Argentina (Bonaparte 1986; Rauhut 2005), China (Dong & Tang 1985; He 1984; Gao 1993; Dong *et al.* 1983; Zhao & Currie 1993) and Europe. The majority of European specimens come from the UK but attempts to incorporate these into wider studies of dinosaur evolution and palaeobiology are hindered by a complex taxonomic legacy. Recent authors agree that a revision of British Jurassic theropods is overdue (Allain & Chure 2002; Day & Barrett 2004; Benson *et al.* 2008). These specimens potentially include the oldest reports of tetanurans, *Magnosaurus nethercombensis* and '*Megalosaurus*' *hesperis*, which are Bajocian in age (Waldman 1974; Holtz *et al.* 2004). Although older tetanuran records have been proposed, these have subsequently been shown to belong to non-tetanuran or even non-theropodan taxa (Rauhut & Hungerbühler 2000; Witmer 2002; Clark *et al.* 2004; Nes-