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ABSTRACTS

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Neustosaurus nesting within this clade. As *Neustosaurus* is the oldest named genus, all species are transferred to that genus (in accordance with ICZN rules), with the exception of *Geosaurus gracilis*, as it lacks the hindlimb synapomorphies of *Neustosaurus*, therefore the name *Rhacheosaurus* is resurrected for this species.

Elucidating the feeding mechanics of *Diplodocus longus* using the Finite-element method

Mark T. Young¹, Emily J. Rayfield¹, Paul M. Barrett², Paul Upchurch³ and Lawrence M. Witmer⁴

¹Department of Earth Sciences, University of Bristol, UK

²Department of Palaeontology, Natural History Museum, London, UK

³Department of Earth Sciences, University College London, UK

⁴Department of Biomedical Sciences, Ohio University, Athens, OH, USA

Sauropods include some of the most bizarre and biomechanically unfeasible animals ever to have existed. How they fuelled their multi-tonne bodies on an apparently nutrient poor diet of fibrous plant matter challenges our understanding of both extinct and extant biological systems. Amongst the Sauropoda, *Diplodocus* has one of the most bizarre skull and teeth morphologies witnessed (such as an elongate rostrum, teeth restricted to anterior margin of jaws, and fragile peg-like teeth with oblique labial wear facets).

Previous studies focusing on the skull morphology and teeth micro-wear patterns have postulated different feeding behaviour hypotheses for *Diplodocus*, including unilateral branch stripping and horizontal slicing, both. Based upon a CT scan of *Diplodocus longus* CM 11161, these feeding hypotheses were quantitatively tested using finite element analysis (FEA). When these hypotheses were simulated using a FE-model of CM 11161, the deformation experienced by the teeth during the horizontal slicing simulation would have shattered the teeth in real-life. In addition, unilateral branch stripping with anything but low-level loadings to the teeth also deformed the dentition beyond that which could be naturally endured. Quantitative modelling using FEA supports the hypothesis that *Diplodocus* stripped soft leaves from branches via propaliny of the mandible.

Taxonomical value of selected biometrical characters: example of *Alveolites* (Tabulata) from the Frasnian of the Holy Cross Mountains (Poland)

Mikołaj K. Zapalski

Faculty of Geology, Warsaw University, Poland

Laboratoire de Paléontologie stratigraphique FLST and ISA, UMR 8014 CNRS Lille, France

Biometrical characters are important species indicators in tabulate corals. Most often used are: corallite diameter (or lumen diameter), wall thickness, pore diameter, pore spacing and tabulae spacing. Their variation was studied on several species of *Alveolites* (*A. compressus*, *A. maillieuxi* and *A. suborbicularis*) coming from the Frasnian of Kowala Railroad Cut in the Holy Cross Mountains, Poland.

The variation coefficient (*vc*) was counted as follows: $vc = \text{standard deviation} / \text{mean}$. The study shows that the lowest intracolony variation is that of corallite lumen diameter (*vc*: 0.093–0.196), while the most variable was tabulae spacing (*vc*: 0.207–0.360).