The Palaeontological Association
51st Annual Meeting
16th–19th December 2007
Uppsala University, Sweden

PROGRAMME WITH ABSTRACTS

edited by

Graham E. Budd, Michael Streng, Allison C. Daley and Sebastian Willman

Uppsala, 2007
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**

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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)**

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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=standard deviation/mean. The study shows that the lowest intracolonial variation is that of corallite lumen diameter (vc: 0.093–0.196), while the most variable was tabulae spacing (vc: 0.207–0.360).