

JOURNAL OF VERTEBRATE PALEONTOLOGY

VOLUME 27, SUPPLEMENT TO NUMBER 3

September 2007

ABSTRACTS OF PAPERS

SIXTY-SEVENTH ANNUAL MEETING

SOCIETY OF VERTEBRATE PALEONTOLOGY

THE JACKSON SCHOOL OF GEOSCIENCES AT

THE UNIVERSITY OF TEXAS, AUSTIN

HILTON AUSTIN

AUSTIN, TEXAS

OCTOBER 17–20, 2007

HOST COMMITTEE

Christopher J. Bell, Chair; Timothy Rowe, Arthur Busbey, Brenda J. Chinnery-Allgeier, Eric Ekdale, Christian George, Chris Jass, Tom Lehman, Ernest Lundelius, Lyndon Murray, Martin Sander

EXECUTIVE COMMITTEE

Catherine Badgley, President; Blaire VanValkenburgh, Vice-President; Annalisa Berta, Past-President; Christopher A. Brochu, Secretary; Louis H. Taylor, Treasurer; P. David Polly, Member-at-Large; Jaelyn Eberle, Member-at-Large; Michael Gottfried, Member-at-Large

SYMPOSIUM CONVENORS

Jason Anderson, Thomas Eiting, Anthony Friscia, Anjali Goswami, Gregg Gunnell, H. Gregory McDonald, Andrew Milner, Eric Scott, Nancy Simmons

PROGRAM COMMITTEE

Jason Head, Chair; J. David Archibald, Jonathan Bloch, Gregory Buckley, Matthew Carrano, Kristi Curry Rogers, Ted Daeschler, Eric Dewar, David Froehlich, Michael Gottfried, F. Robin O'Keefe, Emily Rayfield, Rebecca Terry



DOMING, HETEROCHRONY, AND PAEDOMORPHOSIS IN THE
PACHYCEPHALOSAURIDAE (ORNITHISCHIA: DINOSAURIA): TAXONOMIC
AND PHYLOGENETIC IMPLICATIONS

SULLIVAN, Robert M., Section of Paleontology and Geology, The State Museum of
Pennsylvania, 300 North Street, Harrisburg, PA 17120-0024

Fully-developed frontoparietal domes versus "flat-headed" skulls has been a convenient way to divide the Pachycephalosauridae into neat phenetic types. However, fully-domed small pachycephalosaurids abruptly appear in North America ~85 ma (late Santonian), and flat-headed pachycephalosaurids are more frequently encountered in younger (Judithian-Lancian [and equivalent] age) strata, thus offering a clue that, in part, undermines the thesis that "flat-headedness" is truly primitive. The ubiquitous prevalence of smaller-domed pachycephalosaurids in older strata, and the more common occurrence of "flat-headed" pachycephalosaurids in younger Upper Cretaceous strata, suggests that the "flat-headed" morphology may represent an earlier ontogenetic stage that is delayed in larger and more mature individuals and thus is heterochronic in its expression. Paedomorphosis, the retention of ancestral juvenile characters in later ontogenetic stages, is evident among some younger "end" members of the family. Paedomorphic pachycephalosaurids would include all those taxa that have "flat-headed" skulls, incipient developed domes, and/or retain open supratemporal fenestrae. The taxon *Stegoceras validum* is the earliest pachycephalosaurid to exhibit this trend, as it has flat frontoparietals in juveniles, and incipiently domed frontoparietals and partly opened supratemporal fenestrae in (presumably) adult specimens. The taxonomic and phylogenetic implications of recognizing paedomorphic trends in the Pachycephalosauridae are tremendous, especially if doming occurs late in ontogeny. The validity of many of the Asia taxa (*Goyocephale*, *Homalocephale*, *Tylocephale* and *Wannanosaurus*) would be in doubt, as would the newly described *Dracorex*, and *Stygomoloch*, from North America. The clade "Pachycephalosaurinae" would need to be abandoned, as it has been defined by the acquisition of a fully-developed dome. Consequently, the accepted phylogeny of the Pachycephalosauria and Pachycephalosauridae would be equivocal and unresolved.

Pages 154A - 155A