

CONTRIBUTIONS TO THE MARSHALL LAMBERT SYMPOSIUM

DID PACHYCEPHALOSAURS (ORNITHISCHIA: DINOSAURIA) REALLY BUTT HEADS?

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The hypothesis that pachycephalosaur dinosaurs used their massive dome heads in head-to-head butting is reexamined. Such behavior would seem anatomically unlikely. Instead, flank butting is suggested by the available evidence.

Two types of flank butting are recognized. One type was seen in *Pachycephalosaurius*, *Prenocephale*, and *Stegoceros*, all of which have thickened cranial domes. Such domes would maximize the mass of the head in flank-directed blows. The second type of butting was seen in *Stygomoloch*. The squamosal horns seem to be an adaptation for causing maximum pain locally during flank butting, but without causing serious injury.

A new reconstruction of the skull and head of *Stygomoloch* is presented. The head restoration differs from previous versions in that the squamosal horns are directed more laterally than dorsally. In addition, the shelf above the orbital is much broader than in other pachycephalosaurs.
