THE FUNCTION OF THE HORNS OF TITANOTHERES (MAMMALIA, PERISSODACTYLA)

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S. Stanley (1974, Evol. 28:447) suggested that the horns of titanotheres served principally as a head-on butting device in intraspecific agonistic behavior. I suggest that broadside intimidation displays (cf. V. Geist, 1966, Behaviour 27:184) were a more important function of titanothere horns. The following points support this hypothesis: 1) The earliest occurrences of horns in titanotheres are as small protuberances on the top of the skull (e.g. Manteoceras) that could be used only by swinging the head up and to the side. 2) Titanotheres show a large array of horn morphologies, many unsuited for head-to-head butting (e.g. the Protembolotherium-Embolotherium clade). 3) The long, thin nasals seen in some titanotheres would be damaged in head-on butting. 4) In order for the horns of two titanothere individuals to meet tip-to-tip, the animals would have to hold their heads at such an angle that they may not have been able to see in front of them. 5) Extant mammals (e.g. some sheep) which actively engage in head-on butting have relatively larger and wider horns than did titanotheres. 6) Titanothere specimens are known in which ribs were broken and healed during life.

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