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Giant theropod dinosaurs from Asia and North America: Skulls of *Tarbosaurus bataar* and *Tyrannosaurus rex* compared

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The skull of a newly prepared *Tarbosaurus bataar* is described bone by bone and compared with a disarticulated skull of *Tyrannosaurus re*x. Both *Tarbosaurus bataar* and *Tyrannosaurus rex* skulls are deep in lateral view. In dorsal view, the skull of *T. rex* is extremely broad posteriorly but narrows towards the snout; in Ta. bataar the skull is narrower (especially in its ventral part: the premaxilla, maxilla, jugal, and the quadrate complex), and the expansion of the posterior half of the skull is less abrupt. The slender snout of *Ta. bataar* is reminiscent of more primitive North American tyrannosaurids. The most obvious difference between *T. rex* and *Ta. bataar* is the doming of the nasal in *Ta. bataar* which is high between the lacrimals and is less attached to the other bones of the skull, than in most tyrannosaurids. This is because of a shift in the handling of the crushing bite in *Ta. bataar* . We propose a paleogeographically based division of the Tyrannosaurinae into the Asiatic forms (*Tarbosaurus* and possibly *Alioramus*) and North American forms (*Daspletosaurus* and *Tyrannosaurus*). The division is supported by differences in anatomy of the two groups: in Asiatic forms the nasal is excluded from the major series of bones participating in deflecting the impact in the upper jaw and the dentary-angular interlocking makes a more rigid lower jaw.

Key words: Dinosauria, Theropoda, Tyrannosauridae, Tarbosaurus, Tyrannosaurus, skull, anatomy, Mongolia.

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