NEW MATERIAL OF THE ICHTHYOSAUR MIXOSAURUS NORDENSKIOELDII FROM THE TRIASSIC OF BRITISH COLUMBIA, AND THE INTERSPECIFIC RELATIONSHIPS OF MIXOSAURUS

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New material of Mixosaurus nordenskioeldii from the Middle Triassic Sulphur Mountain Formation of Wapiti Lake, British Columbia, includes cranial elements with complete upper and lower dentitions, and associated post-cranial material. It demonstrates that skulls with a Phalarodon-like dentition are associated with a Mixosaurus type of post-cranium. The upper and lower dentitions differ in the degree of anteroposterior elongation of the molariform teeth and in the rate of tooth differentiation. These new specimens demonstrate that the separation of the Svalbard material into Phalarodon and Mixosaurus (Merriam, 1911; Wiman, 1916) represents a separation of upper and lower dentitions and confirms that Phalarodon fraasi is the junior synonym of Mixosaurus nordenskioeldii.

Mixosaurus nordenskioeldii is more derived than M. cornalianus in the following characters: 1) Anterior end of both jaws edentulous, 2) Posterior crushing teeth laterally compressed domes, elongate anterolaterally, 3) Skull with large parietal crest, extending well forward between the orbits, 4) Sixth digit present in manus (developed from a neomorph in M. cornalianus).

A well preserved stapes is present in the new material of Mixosaurus from British Columbia. This is one of the oldest preserved ichthyosaur stapes and demonstrates that this element was primitively long and slender in the Ichthyopterygia.

The cheek region in Mixosaurus is formed by two large bones traditionally identified as the quadratojugal and the squamosal. The homologies of these elements are reinterpreted as the squamosal and the supratemporal.

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