A NON-MARINE VERTEBRATE ASSEMBLAGE FROM THE LATE CRETACEOUS (TURONIAN-CONIACIAN) CANADIAN HIGH ARCTIC

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An assemblage of non-marine vertebrates has been recovered from sedimentary rocks at the base of the Kanguk Shale on Axel Heiberg Island. $^{40}Ar/^{39}Ar$ radiometric age data on underlying basalts, magnetostratigraphic data, and ammonites and inoceramids from overlying sediments constrain the fossil assemblage to the Turonian-Coniacian interval. Sedimentology of the unit indicates deposition in a bay or estuary, although the vertebrate fauna suggests a fully fresh-water environment. New paleomagnetic data indicate that the fossil locality was at a paleolatitude of 71°N.

The assemblage includes fishes, turtles, champsosaurs, a plesiosaur, and a volant bird. Fish are represented by well-preserved but isolated elements of lepisosteids, amiids, and teleosts. Additional holostean-grade fish are indicated by isolated scales, although the identity and relationships of these fishes remain unknown. The turtle assemblage includes a trionychid and two primitive eucryptodires (one of unknown relationships and one of macrobaenid affinities). Champsosaurs are abundantly represented by isolated elements and articulated remains. Plesiosaurs are represented by isolated teeth, and an incomplete humerus indicates the presence of a bird.

Both a high abundance and diversity of ectothermic mesoreptiles and an ichthyofauna reminiscent of those found at lower latitude localities and are consistent with mounting evidence for extremely warm climates in the Arctic during Turonian-Coniacian times. The presence of a macrobaenid turtle indicates a connection to Asia.

Journal of Vertebrate Paleontology, Supplement to #3