

and an associated zygous parietal, reveals conclusively that the specimens in question are referable to a squamate and not a pachycephalosaurine dinosaur. The ornamentation of the parietal resembles that of the parietal previously referred to "*Exostinus*" *lancensis*. The squamosals of this taxon have not previously been described. These and other specimens call into question the attribution of the parietal of "*E.*" *lancensis* and imply the presence of a hitherto unrecognized anguimorph lineage in the Late Cretaceous of North America. The nodose sculpture of this lineage is reminiscent of the enigmatic Eocene taxon *Ornatocephalus metzleri* from Messel, Germany, suggesting a potential relationship between the two.

Technical Session III, Wednesday 4:00

A SNAKE-DINOSAUR ASSOCIATION FROM THE CRETACEOUS OF INDIA
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Derived large-mouthed snakes (macrostomatans) possess numerous specializations in their skull and lower jaws that allow them to consume large vertebrate prey. In contrast, basal snakes lack these adaptations and feed primarily on small prey items. The sequence of osteological and behavioral modifications involved in the evolution of the macrostomatan condition has remained an open question, due to disagreement about the origin and interrelationships of snakes, the paucity of well-preserved early snake fossils on many continental landmasses, and the lack of information of about the feeding ecology of early snakes.

We report on a partial skeleton of a new 3.5 m long snake recovered from Upper Cretaceous rocks of western India. The snake was fossilized within a sauropod dinosaur nest, coiled around an egg and adjacent to the remains of a ca. 0.5 m long hatchling. Multiple snake-egg associations at the site strongly suggest that the snake frequented nesting grounds and preyed on hatchling sauropods. We interpret this pattern as "ethofossil" preservation of feeding behavior. The new snake lacks specializations of modern egg-eaters and of macrostomatans, and skull and vertebral synapomorphies place it in an intermediate position in snake phylogeny. The Indian snake is sister-taxon to the large-bodied "madtsoiid" *Yurlungur camfieldensis* and *Wonambi naracoortensis* from the Neogene of Australia, consistent with a Gondwanan origin of the group. "Madtsoiid" snakes show specializations for intraoral prey transport but lack the adaptations for wide gape that characterize living macrostomatan snakes. The new Indian fossils provide direct evidence of feeding ecology in a Mesozoic snake and demonstrate predation risks for hatchling sauropod dinosaurs. Large body size and jaw mobility afforded some non-macrostomatan snakes a greater diversity of prey items than previously suspected based on extant basal snakes.

Poster Session II, (Thursday)

A HIGH-LATITUDE HESPERORNITHIFORM (AVES) FROM DEVON ISLAND: PALEOBIOGEOGRAPHY AND SIZE DISTRIBUTION OF NORTH AMERICAN HESPERORNITHIFORMS

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A new hesperornithiform specimen from Devon Island in the Canadian High Arctic, is represented by two articulated and one partially articulated vertebrae collected together. These are identified as the last cervical vertebrae (16) and the first two dorsal vertebrae (17 and 18) based on comparisons with specimens of *Hesperornis regalis*. Partially articulated and disarticulated rib fragments were preserved with them as well. This specimen is assigned to *Canadaga arctica*, which was described based on vertebrae 15-17 from Bylot Island, also in the Canadian High Arctic. Shared characteristics of the *C. arctica* type specimen and the new Devon Island specimen, but lacking in *H. regalis*, include a large, deep concavus lateralis and a fovea between the costal fossa and centrum with a deep cavity below the transverse process. The new specimen from Devon Island is only the second occurrence of *C. arctica*, and corresponds in size and morphology to the type specimen.

A review of the distribution of hesperornithiforms in North America allows comparisons of various aspects of the morphology of these birds along a latitudinal gradient. Using *H. regalis* as a datum for comparison, most of the Campanian hesperornithiforms from lower latitudes (*H. bairdi*, *H. mengeli*, *H. macdonaldi*, *H. gracilis*, *H. altus*) are smaller than *H. regalis* and have more restricted geographic ranges (often coming from single localities). On the other hand, *C. arctica* is larger than *H. regalis*, and is only found in high latitudes. Thus, with the exception of *H. crassipes* and *H. chowi*, size trends within hesperornithiforms with restricted geographic ranges seem to follow Bergmann's Rule: populations found at high latitudes are larger than those found at mid latitudes. By comparison, *H. regalis* has a more extensive geographic distribution ranging from Kansas to the Arctic Circle with variability, but no clear trends in size distribution through its range. Interestingly, it has been hypothesized that *H. regalis* was migratory, based on biogeographic distribution and the abundance of juveniles in high latitudes; extant migratory birds are generally less likely to follow Bergmann's Rule.

Poster Session II, (Thursday)

DIVERSITY TRENDS AND THEIR ONTOGENETIC BASIS: AN EXPLORATION OF ALLOMETRIC DISPARITY IN RODENTS

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The multivariate ordination of taxa based on their allometric trajectories provides a space in which to assess allometric disparity among species, and between clades. At a large scale, allometric disparity may be considered a proxy for developmental dynamics; the exploration of allometric space occupation, and its relation with phylogenetic and ecological trends, provides an opportunity to enhance our understanding of factors influencing ontogenetic pathways. Rodents represent almost one half of all mammalian species and thus inherently capture a phenomenal amount of taxonomic diversity. In particular, when compared with other members of Rodentia, the hystricognath rodents (e.g. capybaras, chinchillas) display many atypical attributes, such as the production of few, precocial young after a long period of gestation, and extensive anatomical and ecological diversity. Here we compare cranial allometry and disparity patterns among hystricognaths with those displayed by muroid rodents: a taxonomically diverse group exhibiting a contrasting life strategy and level of anatomical diversity. Following the multivariate generalization of allometry, we used the first principal component from an analysis of 20 cranial measurements, to examine patterns of ontogeny for 20 species of hystricognath rodents and 11 species of muroid rodents. Disparity was quantified using arc cosines between species and clades, and also in comparison to isometry, thereby incorporating positional information for each trajectory. Bivariate allometry was used to assess the role of directional change, lateral shifts, and scaling in the modification of allometric trajectories. We found hystricognath and muroid rodents occupied partially overlapping portions of allometric space, with species location exhibiting correlation with age to sexual maturity, adult body mass, and habit (e.g. cursorial). Members of the microtine clade exhibited the smallest inter specific allometric angles whilst allometric trends appeared the most disparate among species of hystricognaths belonging to the echymid group.

Technical Session VI, Thursday 3:00

AN EXCEPTIONALLY LARGE JURASSIC TURTLE TAPHOCOENOSIS FROM XINJIANG AUTONOMOUS PROVINCE, CHINA

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Fieldwork conducted by the Sino-German Paleontological Cooperation Project in Middle to Late Jurassic fluvial and lacustrine sediments near the city of Shanshan (Turpan Basin, Xinjiang Autonomous Province, NW China) has revealed several diverse vertebrate assemblages, that include remains of hybodont sharks, semionotid fish, rhynchocephalians, crocodylians, theropods, sauropods, basal ornithomorph and thyreophoran dinosaurs, as well as amphitheriid and docodont mammals. One of the most spectacular fossil sites identified to date is a 10 to 20 cm thick mudstone layer in the early Late Jurassic Qigu Formation, which contains an immense accumulation of fossil turtle material. The stratum dips with approximately 60° to the north and is exposed both on the west and east sides of a mesa that is capped by Pleistocene alluvial deposits. The presence of well-developed anterior and posterior plastral buttresses, a ligamentous bridge, upturned anterior peripherals, and a knee-shaped femoral/anal sulcus that crosses the xiphiplastra suture allow confident referral of all material to Xinjiangchelyidae. At least two taxa are present, currently assigned to *Annemys cf. latiens* and *Xinjiangchelys cf. chowi*. All skeletal elements are present, including complete shells, skulls, and delicate postcranial remains such as necks and articulated hands and feet, but juvenile specimens are notably absent. The deposit is estimated to have once covered an area of 500 m² and turtles range in density from 2 to 20 per m². The total number of individuals once buried is calculated at about 2500. The deposit thus likely represents the world's largest fossil turtle taphocoenosis (death assemblage). While surrounding sediments indicate a fluvial environment, the partially articulated preservation of the turtles points to a parautochthonous deposition. It is likely, that these aquatic turtles gathered and finally perished in a retreating water hole during a severe drought, much as some aquatic turtles will do today. The extremely large number of individuals will help clarify morphological variations within xinjiangchelyid turtles and is expected to help resolve the alpha taxonomy of this group.

Poster Session II, (Thursday)

FORELIMB ANATOMY OF SERENGETILAGUS PRAECAPENSIS (MAMMALIA: LAGOMORPHA) FROM LAETOLI, TANZANIA: TAXONOMIC AND FUNCTIONAL IMPLICATIONS

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Fossiliferous early Pliocene (>4.3–2.6 Ma) deposits at Laetoli, Tanzania, have yielded the most extensive collection of lagomorph remains from Africa. Specimens have been recovered from three major stratigraphic units (from oldest to youngest): the Lower and Upper Laetoli Beds, and Upper Ndolanya Beds. Although all lagomorph remains from Laetoli had traditionally been assigned to *S. praecapensis*, preliminary studies suggested that those from the Upper Ndolanya Beds might be taxonomically distinct from those from