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atmospheric oxygen levels may have had a profound influence on metabolism and growth of ectothermic amniotes in their evolutionary history (e.g., acting as a constraint on growth rates in some Triassic taxa). Attempts to infer growth rates of extinct taxa from their fossil bone microstructure should consider contemporary oxygen levels when offering alternative explanations.

Technical Session VIII, Thursday 1:30
SKINNING DINOSAURS: BONY CORRELATES AND PATTERNS OF CEPHALIC SKIN EVOLUTION IN ARCHOSAURIA
HERONYMS U.S., Tobin, Ohio University, Athens, OH, USA; WITMER, Lawrence, Ohio University, Athens, OH, USA

Extant archosaurs bear a number of striking skin features on their heads, ranging from the elaborate display structures seen in many birds to highly sensitive feeding structures as in Pleiarchos, or at least skimming behavior. Surface swimmers and skimmers have been able to identify consistent bony correlates for some specific skin types, such as

Poster Session I (Wednesday)
A REVIEW OF THE PANTHERA ONCA (MAMMALIA; CARNIVORA; FELIDAE) FROM THE CURTIS RANCH LOCAL FAUNA (BLANCAN), SOUTHEASTERN ARIZONA
HODNETT, John-Paul, Northern Arizona University, Flagstaff, AZ, USA

The fossil materials from the Curtis Ranch local fauna referring to jaguar (Panthera onca) has been cited as the oldest occurrence of P. onca in North America. These fossils include a left partial p4, a right calcaneum, and an upper third metataral fragment. This material was originally attributed as “Fellas, near F. actae” by Gazin was then later placed in Panthera onca by others. Examination of these fossil materials now suggests that Panthera did not occur within the Curtis Ranch local fauna and instead these fossils represent two separate taxa. In comparison of the lower p4 in Panthera the principle cusp is usually broad and low, has a concavity on the mediolateral margin of the crown when viewed in occlusal, and lacks the presence of a cingulum on the posterior margin of the tooth. The lower p4 from Curtis Ranch has a broad and tall cuspule, is ovate when viewed in occlusal, and has the presence of a pronounced cingulum on the posterior margin of the tooth. These characters suggest an affinity not with Panthera but rather the hyaenid Chasmaporthetes cuneatus. Bi-variant analysis of the length and width of lower p4s of Panthera and Chasmaporthetes shows the Curtis Ranch p4 to be placed in the Chasmaporthetes cluster. This p4 represents the first record of Chasmaporthetes cuneatus from the Curtis Ranch local fauna. The characters in the calcaneum of Panthera vary between species, with Panthera onca having a shorter paramedian tuber relative to other Panthera species. In the Curtis Ranch calcaneum the paramedian tuber is proportionately longer than that seen in P. onca and a navicular is present, a characteristic that is typically absent in pantherid felids. The long paramedian tuber, the presence of a navicular facet, and a long shaft for the Achilles tendon attachment are characters seen in the large felid Machairodus indicos. This specimen was found in association with the metatarsal fragment that also shows characters to a very large M. indicos. The Curtis Ranch material supports Panthera onca migrating into North America during the middle Irvingtonian and not before the Pleistocene.

Poster Session I (Wednesday)
CRANIAL MORPHOLOGY OF MESODERMOCHELYS (CHOLENOIDEA; TESTUDINES) FROM THE LATE CRETACEOUS OF JAPAN
H RAYAM A, Ren, Waseda University, SLS, Shinjuku-ku, Tokyo, Japan

Mesodermochelys undulata is a chelonian sea turtle dominated in the Late Cretaceous (Campanian and Maastrichtian) of Japan (Hokkaido, Hokkaido, and Kaga Prefecture). Mesodermochelys has been classified as a primitive Dermochelyidae, largely based on postcranial morphology such as an elongate lateral process of the humerus. An isolated skull presumed as Mesodermochelys was found from the calcareous concretion of the Late Cretaceous (Santonian) Yezo Group of Tomamae-cho, Hokkaido Prefecture, northern Japan by M. Y. Yoshiyuki Hattori in October of 2005. A large portion of the dermal roofing elements, including prefrontal, frontal and squamosal, and premaxilla were missing due to weathering from this specimen, which is donated in the Historical Museum of Hokkaido, Sapporo at H M H 151807. Nonetheless, this is the first known well-preserved skull of this genus, though more fragmentary skull and lower jaws were obtained from the Maastrichtian of Hokkaido (Hokkaido Prefecture). H M H 151807 was carefully prepared by using formic acid, revealing the following distinct characters: 1) palatines medially meeting, 2) foramen posterior canalis caroticus, 3) continuously covered by bone on ventral surface of pterygoid as in Pleiarchos, or 4) bony process extending from the posterior floor of the orbit. The tree length is 356, with a consistency index of 0.4888. Mesodermochelys is here shown as a sister taxon of the Protostegidae, an extinct family of chelonians once flourishing during the Cretaceous. Thus, Mesodermochelys is a cheloniod closely related with protostegids, or basal members of the latter, though dermochelyid-like limb morphology was independently acquired in this genus.

Poster Session IV (Saturday)
PITCH, YAW AND ROLL - HADROSAURIAN LOCOMOTION KINETICS INVESTIGATED WITH Cae
HOHLICH, Alexander, Eberhard-Karls-Universität, Tübingen, Germany

In this study digitized bones of Brachylophosaurus, a non-crested hadrosaur, are measured to produce biomechanical computer models. These are used in a CAE (Computer Aided Engineering) software to investigate the different postures and gaits of hadrosaurs. The purpose is to achieve a better definition of their locomotion capabilities with special regards to interspecific interaction. The front limbs of hadrosaurs show significant adaptations to locomotion, such as elongation of the forearm and the hoof-shaped unguals. Additionally, hadrosaurs exhibit the most rigid axial skeleton among dinosaurs due to the ossified longitudinal tendons on the spinal processes. Kinematic/dynamic computer modeling of Brachylophosaurus for slow speeds shows differing duty factors in the fore- and hind limbs, caused by the unequal limb lengths and the position of the center of gravity, which rests almost directly above the toes. This means that hadrosaurs used a normal walk with emphasis on the hind leg. This effect increases with greater step lengths (i.e. higher speeds). The fact that weight carrying on the front limbs appears not to play a significant role, the question arises of how did these large hadrosaurs use their forelimbs at all when walking? Potentially, lateral instability of the limbs (‘yawing’ motion) induced by the transfer of rotational inertia along the body axis was countered. Most other animals can employ lateral bending of the vertebral column to counteract lateral instability of the limbs. In the case of hadrosaurs, lateral instability was reduced by the very rigid axial skeleton, which, in turn, prevented the use of lateral bending for counteracting lateral instability.