

Volume 25, Supplement to Number 3
7 September 2005



JOURNAL of VERTEBRATE PALEONTOLOGY

ABSTRACTS OF PAPERS

SIXTY-FIFTH ANNUAL MEETING
SOCIETY OF VERTEBRATE PALEONTOLOGY
MESA SOUTHWEST MUSEUM AND
PHOENIX MARRIOTT MESA
MESA, ARIZONA

OCTOBER 19-22, 2005

SOCIETY OF VERTEBRATE PALEONTOLOGY

ISSN 0272-4634

ably change depending on the trackways width. This track record can be particularly instructive in adding information on behavioral aspects of shorebirds and diversity and abundance in the middle Cretaceous.

Poster Session A

MESADACTYLUS AND OTHER NEW PTEROSAUR SPECIMENS FROM THE MORRISON FORMATION (UPPER JURASSIC) OF WESTERN COLORADO

KING, Lorin, Louisiana Delta Community College, Monroe, LA; FOSTER, John, Museum of Western Colorado, Grand Junction, CO; SCHEETZ, Rodney, Brigham Young Univ., Provo, UT

New specimens collected recently indicate the presence of the pterodactyloid pterosaur *Mesadactylus ornithosphyos* at the Kings View Quarry near Fruita and of indeterminate pterosaurs at the Mygatt-Moore Quarry in Rabbit Valley and the Uraivan Site, all in western Colorado. The Kings View Quarry yielded juvenile *Camarasaurus*, juvenile *Stegosaurus*, a theropod tooth, crocodylian teeth, *Glyptops* shell, and an *Opithias* jaw. It also has produced a pterodactyloid right radius, right first wing phalanx, rib(?), and manual(?) phalanx (digit I, II, or III). The radius and first wing phalanx match those of *Mesadactylus ornithosphyos* from the Dry Mesa Quarry and are assigned to that species. This makes *Mesadactylus* the first pterosaur genus in the Morrison Formation to be identified at a site in addition to its type locality; all other Morrison pterosaurs are single occurrences. The pterosaur specimen from the Mygatt-Moore Quarry represents the first new species from that site in a number of years and is one of the few small vertebrates ever found at this locality, which has yielded thousands of bones over the years, mostly of *Apatosaurus*, *Allosaurus*, *Camarasaurus*, and *Mymoorapelta*. The Mygatt-Moore Quarry represents an apparent floodplain mud/water hole, and the pterosaur specimen consists of a single, hollow indeterminate wing bone shaft. The fragmentary specimen from the Uraivan Site may be a "rhamphorhynchoid" and consists of many very fragmentary bones, apparently from a single individual.

Poster Session A

DINOSAUR REMAINS FROM THE LOWER TO MIDDLE CAMPANIAN WAHWEAP FORMATION AT GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT, SOUTHERN UTAH

KIRKLAND, James, DEBLIEUX, Donald, Utah Geological Survey, Salt Lake City, UT

Based on teeth collected during the search for microvertebrates, the Wahweap Formation has been noted as preserving North America's most diverse lower to middle Campanian dinosaur fauna, having nine taxa identified from teeth. Significant skeletal material has only recently become available for study, due to a systematic inventory of fossil localities in the lower sandstone and middle mudstone members of the Wahweap Formation in the southern Kaiparowits Plateau. Ceratopsian cranial remains indicate the presence of a long-horned centrosaurine of moderate size (skull length of ~1 m); the best preserved of these skulls still awaits airlift out of the backcountry. A team from the Univ. of Utah working with the authors recovered a frontoparietal dome from a pachycephalosaur from the middle mudstone member. Although worn from transport, the specimen appears to represent a new species as it is unique in the possession of a narrow triangular nasal buttress. Additionally, several hadrosaur bone beds and/or associated skeletons have been identified. Excavations of these Wahweap fossil localities are only just beginning, and to date only one specimen identifiable to genus has been recovered. This is a complete jugal that compares best with *Brachylophosaurus*, which would represent the oldest and most southern occurrence of this Middle Campanian genus.

Poster Session B

REVISITING THE TAXONOMY OF DIALECTIDAE (COTYLOSAURIA: DIALECTOMORPHA): A PHYLOGENETIC APPROACH

KISSEL, Richard, REISZ, Robert, Univ. of Toronto, Mississauga, ON, Canada; BERMAN, David, Carnegie Museum of Natural History, Pittsburgh, PA

The Diactidae, a clade of Permo-Carboniferous diactidomorph cotylosaurs, appear to represent the oldest known evolutionary radiation of high-fiber terrestrial herbivores. Members of this clade have a wide geographic distribution, are commonly found in continental sediments of the Laurasian part of Pangaea, and are currently represented by seven genera and thirteen recognized species. Although several new genera and species have been described during the last decade, little is known about the true taxonomic diversity of diactidids and the species level phylogeny of the clade.

Reported here are the preliminary results of the first phylogenetic analysis to incorporate all well-known diactidid species: *Ambodus pusillus*, *Orobates pabsti*, *Desmatodon hesperis*, *Diasparactus zenos*, and the six species currently referred to the genus *Diadectes*. In all trees produced thus far, *Diadectes absitus* and *Diadectes sanmiguelensis* consistently fall outside the clade formed by *Diasparactus zenos* and all other species of *Diadectes*. Furthermore, all of the characters cited in the original diagnosis of *D. sanmiguelensis*, and at least one in that of *D. absitus*, are shown to be primitive, appearing earlier in the evolutionary history of Diactidae or present in the non-diactidid diactidomorphs *Limnoscelis* and *Tseajaia*. These preliminary results, not surprisingly, demonstrate that the currently accepted taxonomy of Diactidae is in need of review, and until more data is gathered and diactidid interrelationships can be further tested by the authors, the assignment of *D. absitus* and *D. sanmiguelensis* to the genus *Diadectes* should be considered tenuous.

Saturday 9:15

BONE HISTOLOGY AND GROWTH OF THE PROSAUROPOD DINOSAUR *PLATEOSAURUS ENGELHARDTI* MEYER, 1837 FROM THE NORIAN BONEBEDS OF TROSSINGEN (GERMANY AND FRICK (SWITZERLAND))

KLEIN, Nicole, SANDER, Martin, Univ. of Bonn, Bonn, Germany

Predominately long- and flat bones of the prosauropod *Plateosaurus engelhardti* from the Norian localities of Trossingen and Frick were sampled for paleohistological study. Both localities yield rich material of adult individuals with a body size of 4.70 m to 10 m. Altogether 50 bones from approximately 27 individuals were sampled by different methods (coring, cross sectioning, analysis of existing fracture surfaces). Most bones consist of the laminar fibro-lamellar complex, always cyclically interrupted by lines of arrested growth (LAGs). In some bones, the laminar fibro-lamellar complex changed in the exterior cortex to lamellar-zonal bone, later grading into avascular lamellar bone. Thus, growth was clearly determined in *P. engelhardti*. Like most other dinosaurs *Plateosaurus engelhardti* shows high growth rates, indicating an advanced ("dinosaurian") physiology. On the other hand, *Plateosaurus engelhardti* shows a strong dependency on environmental conditions. Additionally, its final size is represented by a very broad range (between 6.5 m to 10 m). Both reflect a more reptilian growth pattern as is known from other dinosaurs. It marks the basal status of *Plateosaurus engelhardti*. Thus, in *Plateosaurus* the foundation is seen for the evolution of gigantism in sauropods.

Poster Session B

THEROPOD TEETH FROM THE BERRIASIAN OF ANOUAL (MOROCCO)

KNOLL, Fabien, Staatliches Museum für Naturkunde, Stuttgart, Germany; RUIZ-OMENACA, Jose Ignacio, Universidad de Zaragoza, Zaragoza, Spain

The locality of Anoual (Morocco) has produced one of the most diverse assemblages of Mesozoic microvertebrates in Africa. With respect to dinosaurs, both ornithischians and saurischians are very well represented. Precise identification of the theropod remains is difficult due to the incomplete nature of the specimens as well as to our poor knowledge of the systematics of this group during earliest Cretaceous times.

Exclusive of the teeth that cannot be identified beyond Theropoda, preliminary results suggest that all the specimens belong to coelurosaurids. Unserrated teeth have been assigned to Coelurosauria indet., whereas teeth recalling those of compsognathids and some dromaeosaurids and troodontids by the restriction of the denticles to the distal edge have been tentatively identified as Maniraptora indet. Other teeth having the mesial denticles smaller than the distal ones have been identified as Velociraptorinae indet. Finally, some teeth with grooved enamel could be related to "paronychodontids". Maniraptorans constitute the major fraction of the taxa sampled and possibly three distinct species of velociraptorines are present. Some of the largest specimens belong to this subfamily, but they are barely from middle-sized animals: most of the Anoual theropod record is from diminutive individuals.

In Africa, the Jema River localities (which have yielded teeth of indeterminate theropods and of an allosauroid) are distant from Anoual (Ethiopian) and somewhat older (tithonian). From both a paleogeographic and stratigraphic point of view, the closest theropod sites to Anoual are situated out of Gondwana, in the Iberian Peninsula. Nevertheless, only very few specimens have been recorded there to date and they are not suitable for precise systematic allocation. Merely the presence of Coelurosauria could have been established in the Galve area (Spain) in a level close to the Jurassic-Cretaceous boundary.

Poster Session B

ANATOMY OF *TOYOTAMAPHIMEIA MACHIKANENSIS* (CROCODYLIA) FROM THE PLEISTOCENE OF JAPAN AND REASSESSMENT OF ITS PHYLOGENETIC STATUS

KOBAYASHI, Yoshitsugu, Hokkaido Univ. Museum, Sapporo, Japan; TOMIDA, Yukimitsu, National Science Museum, Tokyo, Japan

Toyotamaphimeia machikanensis from the Pleistocene sediments of the Osaka Group in Osaka Prefecture was originally described as a new species of a modern genus, "*Tomistoma machikanense*", but a later study recognized it as a new genus by having the largest maxillary teeth at 7th tooth position and suggested affinities with *Crocodylus*. Its phylogenetic position still remains unresolved because published anatomical data is limited to cranial features despite the completeness of the specimen (a nearly complete skeleton, missing most of caudals and parts of limb elements).

The anatomy of *Toyotamaphimeia* was re-examined, and a preliminary phylogenetic analysis was conducted with 164 characters for 63 taxa (two outgroups). The analysis produced 1128 most parsimonious trees of 532 steps. The strict consensus tree suggests that *Toyotamaphimeia* is placed within the clade of Tomistominae. This analysis demonstrates that the monophyly of Tomistominae is supported by four unambiguous synapomorphies: deep constricted splenial symphysis, dentary straight between fourth and tenth alveoli, suborbital fenestra without posterior notch, nasals excluded from naris, and nasals and premaxillae in contact. Three of them (excluding suborbital character) are present in *Toyotamaphimeia*, and are related to longirostry.

Although previous studies stated that the largest alveolus diameter in the maxilla of *Toyotamaphimeia* was the seventh tooth, the twelfth and thirteenth maxillary teeth are actually larger than the seventh. In the maxillae, posterior teeth are more closely placed than anteriorly.