

New data indicate that discoglossids do not uniquely possess an enlarged supra-acetabular expansion. Quantitative analysis was based on 1) the distance between the superocaudal acetabular rim and the caudal tip of the ilium, and 2) the angle made by points on the dorsum of the ilial shaft, the caudal tip of the ilium, and the inferocaudal tip of the ilium. Measure 1 was scaled using the acetabular width. It is concluded that members of at least four families besides the Discoglossidae (Myobatrachidae, Hyperoliidae, Hylidae, and Leptodactylidae) also possess an enlarged supra-acetabular expansion. Interestingly, all of these families are distributed primarily on southern continents. Therefore, these data question the taxonomic association of the Late Cretaceous Indian frog *Iliia* with the Discoglossidae, and thereby withdraw support for a terminal Cretaceous terrestrial connection between India and Asia.

THE RESEARCH OF THE BRAZILIAN DINOSAURS PROJECT

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The Dinosaur of Brazil Project is a multidisciplinary research project, aiming to elucidate some aspects related to dinosaurs and associated paleofauna, and their life environment in Brazil, in order to characterize their ways of life, through reconstruction of the past.

The activities of the Project are related to two basic lines of research: 1. Paleontology (dinosaurs, associated paleofauna, paleoecology, paleogeography, biodiversity in the geologic past). 2. Sedimentary Geology (basin stratigraphy, sedimentology and sedimentary petrology).

The project is currently developing its activities in several states of the country such as Minas Gerais (localities: Leopoldina and Prata), São Paulo (Morro Alto, Alvaras Machado and Presidente Prudente), Paraíba (Souza), Mato Grosso (Morro do Cambambe and Tesouro), Pernambuco (Olinda) and Rio Grande do Sul (Santa Maria, Candelária, Maua and São Pedro do Sul).

In the state of Rio Grande do Sul, the land of *Saurolophus pyralis* (the oldest Brazilian dinosaur - Triassic), recent investigations are trying to find out what happened to these Triassic dinosaurs, as well as forming a better correlation with the Argentinian paleofauna.

Besides the geo-paleontologic studies, the Project is concerned with educational activities, such as organization and guidance of scientific exhibitions, as well as lectures, booklets and short courses given to the overall community and some paleontologic-geologic excursion guides.

A NEW GIANT DROMAEOSAURID FROM JAPAN

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The most productive dinosaur sites in Japan are found in the Kitadani Formation (Albian) of the Tetori Group in Fukui Prefecture. Jaw fragments from the Katayama quarry were identified in 1991 as dromaeosaurid on the basis of fusion of the interdental plates. Two years later, the discovery of a right first manual ungual, a right astragalus, and a left metatarsal III confirmed that one of the theropods is a dromaeosaurid. These bones were found in a small area of the quarry, and may represent part of an associated skeleton. That region of the excavation will be extended in 1995.

The manual ungual, which is probably from the first digit, is laterally compressed, strongly recurved, and tapers to a very sharp point. The distance from the dorsal edge of the proximal articulation to the tip is 10.5 cm measured in a straight line, and 15 cm measured along the outside curvature. The third metatarsal is 29.5 cm long. Both of these measurements suggest that the animal is approximately double the size of *Deinonychus*. Although there are no overlapping elements with *Utahraptor*, the Japanese dromaeosaur would have been about 25% smaller in linear dimensions.

The presence of giant dromaeosaurids in Lower Cretaceous strata of Japan, Mongolia and the United States shows that faunal interchange between the northern continents was well underway by Albian times.

THE EVIDENCE FOR 'HAIR' IN *SORDES* AND OTHER PTEROSAURS

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The likelihood that pterosaurs bore 'hair' has been debated for over 160 years. Some 19th century workers, such as Seeley, argued strongly in favour of hair, but little direct evidence was found until early this century. Brolli, Wellenhofer and others, reported impressions of 'hairs' and 'hair follicles' in various Solnhofen pterosaurs and these interpretations gained widespread acceptance with Sharov's description of what appeared to be well preserved hair-like structures in *Sordes pilosus* from the Upper Jurassic of Kazakhstan.

However, our work on the flight apparatus of pterosaurs led to the discovery that all published figures of 'hair' in *Sordes* illustrate structural fibres from within the wing membranes. This has prompted suggestions that *Sordes*, and perhaps other pterosaurs, may not have been haired, but further examination of *Sordes* indicates that these claims are premature. On the paratype coxistylus hair-like structures arise from the external edge of the integument bounding the posterior margin of the skull. These structures

reach only 5-7 mm long, are considerably shorter than wing fibres, and markedly thicker. Furthermore, unlike wing fibres, they appear to become entwined in tufts, are often highly sinuous and seem to have lacked internal structure. Patches of what may be 'hair' occur in other individuals, but the quality of preservation is insufficient to be certain of distinguishing them from wing fibres.

It seems likely that *Sordes* bore 'hair' on the head, neck and body, but its exact distribution is unclear. We have begun reassessing other pterosaurs in which 'hair' has been described. Reports of 'hair' in *Anurognathus* are very doubtful and can be confidently rejected for *Dorygnathus*. 'Needle-point pits', reported in *Rhamphorhynchus* and *Pterodactylus*, and interpreted as hair follicles, are possibly of sedimentological rather than biological origin.

A NEW GENUS AND SPECIES OF LATE MIOCENE IMAGOTARIINE PINNIPED FROM ORANGE COUNTY, CALIFORNIA

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Fossil otarioid pinnipeds of the extinct subfamily Imagotariniinae have been known previously from deposits ranging in age from early Middle Miocene (16.5 Ma) through early Late Miocene (circa 10 Ma) bordering the North Pacific Ocean. Imagotariniinae pinnipeds are related to the ancestors of walruses, but retained relatively primitive sea lion-like morphologies and dentitions, and apparently were piscivorous.

A new genus and species of imagotariniinae has recently been discovered in the latest Miocene age (circa 6 to 7 Ma, Hemphillian correlative) Oso Sandstone Member of the Capistrano Formation in Orange County, southern California. This specimen is one of the most complete fossil pinniped skeletons ever discovered. This large pinniped has an elongate but generalized cranium, deep dentaries, and a generalized dentition indicating piscivory. The forelimbs are stoutly built, and the relatively long and straight deltoid crest on the humerus indicates that it swam, at least in part, by using its forelimbs. The neck is relatively long as in modern Otariinae (sea lions). Its scapular morphology is intermediate between the broad shape of Otariinae and the high and narrow shape of Otobeniinae (true walruses). The femur is broad and short, but the tibia and fibula are relatively long.

The intermediate nature of its morphology conforms with previous ideas that imagotariniinae were sea lion-like in habits yet phylogenetically intermediate between enaliarctines and walruses. The new species considerably extends the geochronologic range of the subfamily, and it lived contemporaneously with otariine sea lions, otobeniine walruses, and dasygnathine "pseudo-walruses". The new discovery adds to the impressive diversity of otarioid pinnipeds that lived along the Pacific coast of North America in the latest Miocene.

DISTRIBUTION OF CAVE BEARS IN THE PLEISTOCENE OF ASIA

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The Pleistocene history of Asian cave bears is poorly known. Two species of *Spielerctos* Geoffroy, 1833, *S. deningeri* (von Richenau 1904) and *S. rossicus* (Borissiak 1930), evolved in Asia and dispersed into Europe during the early Middle Pleistocene. A third species, *S. sprieweri* (Rosemuller 1794) which has the most derived spelaeoid features, appeared in Europe during the late Pleistocene.

Spielerctos deningeri has been recovered from many Middle Pleistocene sites in Transcaucasia (Acheulean layers of Azykh Cave, Kudaro 1 Cave, Kudaro 3 Cave, and Tsouka Cave) (Baryshnikov 1989). *S. deningeri* is also known from Israel (Tsoukala 1994), Acheulean layers of Sel-Ugar Cave in Kyrgyzstan (Baryshnikov and Batyrov 1994), and probably Krasnyi Yar on the Ob River, western Siberia (Alexeeva 1980). The primitive morphology of cave bear molars from late Pleistocene localities (e.g., Mousterian layers of Kudaro 3 Cave, Machagua Cave, and Akhshyrskaya Cave) suggests that *S. deningeri* survived in Transcaucasia later than in any other part of its range (Baryshnikov 1989).

Spielerctos rossicus is smaller and first appears in the early Middle Pleistocene of Kuzbass (Fornozova 1990). It is known from the Ural River, Bolshoi Irtyz River, Irtys River, and Zyrjanovsk in the Kazakhstan steppes zone (Kozhankulova 1969). This species has been found at Krasnyi Yar in the Tomsk Region (Alexeeva 1980), Mousterian layers of Stradnaya Cave and Denisova Cave in the Altai (Ovodov 1980), Novolinka in Kuzbass (Alexeeva 1980), Dvuglazka, a Mousterian grotto in Khakassia (Abramova 1985), and the upper horizon of Tolgoi along the Selenga River in Transbaikalia (Vereshagin and Tikhonov 1994).

PALEOGENE RHINOCEROTOIDEA OF KAZAKHSTAN

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The location of Kazakhstan and its landscape/climate played a definite role in the evolution and migration of many forms of Paleogene mammals found in Asia. Rhinocerotoids were a major element of Paleogene faunal communities. Four biostratigraphic intervals can be distinguished by the stratigraphic distribution and level of phylogenetic development of Paleogene rhinocerotoids: 1. Middle Eocene species comprise the Turangan interval - *Triplopus* cf. *T. implicatus*, *Forsteroceros* cf. *F. confusus*, *F. minuta* and *Caenoceros* sp. Their fossils come from E Kazakhstan in the Chakpaktas, Obayla and Sargamyt svitas. 2. The Tuskabak interval consists mainly of swamp rhino erosec (amynodonts) which evolved rapidly due to the appearance of vast marshy areas at the Eocene-Oligocene boundary. *Zaisanomyodon borisovi* and *Cadurcodon tuskabakensis* are known from the Aksyir and Kusto svitas of the Zaysan basin. 3. The Shaikarrun interval encompasses the "Indicotherium stage" of the development of the Paleogene mammal fauna in central Kazakhstan. Rapid development and differentiation of rhinocerotoids due to various