

# ABSTRACT VOLUME

## 4th INTERNATIONAL PALAEOLOGICAL CONGRESS

The history of life:  
A view from the Southern Hemisphere



September 28 – October 3, 2014  
MENDOZA, ARGENTINA



**NEW REMAINS OF GIANT BASILOSAURIDAE  
(ARCHAEOCETI, CETACEA, MAMMALIA) AND GIANT  
BALUCHITHERE (RHINOCEROTOIDEA, PERISSODACTYLA,  
MAMMALIA) FOUND FROM PAKISTAN**

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Dinosaurs, the largest land vertebrates ruled the continents during the Jurassic and Cretaceous, and their extinction at the end of Mesozoic provided the chance for the giant basal whale (Basilosauridae) to rule in the Tethys Sea and giant rhinoceros (Baluchitheres, Rhinocerotidae) to rule on the Eurasian continent during Early Cenozoic. The most complete vertebral column of a giant basal whale (*Sulaimanitherium dhanotri*) was found in the middle Eocene Drazinda Formation of the Indus basin in Pakistan. This genus of Basilosauridae is the third finding in Asia. Besides the remains of Basilosauridae, the Drazinda Formation has also yielded sea cows (*Protosiren*), whales (Protocetidae) and gastropods. The bifurcations of the neural canal, ventral and dorsal keel on lumbar/caudal centrum, and many other characters distinguish the *Sulaimanitherium dhanotri* from other Basilosauridae such as *Basilosaurus drazindai*, *Basilosaurus cetoides* (*Zeuglodon cetoides*), and *Basilosaurus hussaini*. The complete vertebral skeleton of *Sulaimanitherium* provides extensive knowledge on the swimming patterns and evolution of Basilosauridae. This will clarify the swimming behavior due to the finding of the most complete vertebral/axial column/skeleton. The remains of new giant baluchitheres, representatives of the largest land mammals, *Pakitherium shagalai* and *Buzdartherium gulkirao* were found in the Lower-middle Eocene strata of the Shagala Formation in Balochistan Province. They have further been identified from the Oligocene Chitarwata Formation in the Sulaiman Basin and Punjab Province, respectively, but these are fragmentary and seem to be associated and consist of cranial skeleton such as tusk/canine-like thick and long teeth and some postcranial skeleton. The holotype and referred specimens are housed in the Museum of Geological Survey of Pakistan, Quetta. The baluchithere fossils from the Shagala area are the first finding from Balochistan Basin. These fossils are significant for our understanding of depositional environments, baluchithere early evolution and paleobiogeography. Baluchitheres are among the largest land mammals ever and were widespread during the Eocene to Oligocene in Asia (Pakistan, China, Mongolia, Kazakhstan) and southeastern Europe (Yugoslavia, Bulgaria, Romania, Turkey and Georgia) and were endemic to Eurasia. These giant rhinocerotoids show a Eurasian affinity and migrated from Eurasia to the Indo-Pakistan subcontinent or vice versa via the Paleo Indus River systems, after the first collision of Indo-Pakistan subcontinent with Asia.

