

14 December 2006

By: Stefan Anitei, Science Editor



## **First "Bats" Flied with the Dinosaurs**

### *The oldest flying mammal*

When we talk about flight, mammals can laugh at birds. Because the first flying mammals took off at the same time with birds' emergence or perhaps earlier, during the Dinosaur Era, and more than 70 million years before the first known bat. A newfound fossil remains of a furry squirrel-sized mammal dug in Inner Mongolia (China) suggest that mammals were gliding in ancient forests at least 125 millions ago, maybe 130-165 millions years ago, and in this case it would surpass the earliest known flying bird, Archaeopteryx, dated about 150 million years ago. The creature, named *Volaticotherium antiquus*- "ancient gliding beast", was so unusual that was put into a new order of mammals. The last such designation for mammals was in 1871. The US-Chinese team said the animal belonged to a now extinct ancestral line and was not related to modern day flying mammals, such as bats, flying squirrels, colugos or flying marsupials. The little glider was so well preserved that scientists could clearly identify the skin membrane (patagium) that stretched between its fore and hind limbs, a direct evidence that it was adapted for gliding flight. The remains also retained impressions of the fur covering its body. The creature's sharp teeth revealed an insect-eater, like most mammals of its time, and unlike the modern day gliders. "It had a fold of fur-covered skin membrane that stretched between the creature's fore and hind limbs." said Dr. Jin Meng, paleontologist of New York City's American Museum of Natural History. This large membrane combined with its light weight suggested it was an agile glider although probably not deft enough to capture its prey mid-flight. The animal had elongated limbs, like modern flying mammals, and its backbones suggested the presence of a stiff, long tail, which would have acted as a stabilizing rudder in flight. Probably the creature was arboreal and nocturnal. This fossil provides a "dramatically new picture" of the diversity of the now-extinct animals that lived in the age of the dinosaurs. Till now the earliest known gliding mammal was a 30 million-year-old rodent and the oldest accepted bat fossils were about 51 million years old. "Establishing a new order probably only happens once, if that, in the lifetime of a lucky paleomammalogist," said Meng. The researchers believe the gaps in the fossil records for flying mammals are because the creatures delicate flying features are difficult to preserve. Image credit: Chuang Zhao and Lida Xing