Map of Mongolia

Mongolian emblem: the outer rim symbolizes eternity, surrounds a circular blue field, symbolizing the sky. On the centre of the field is the soyombo within the wind horse symbolizing Mongolia's independence, sovereignty, and spirit. Above the field is a chandmani, representing the Buddhist Three Jewels, which in Mongolian folklore grants wishes, and symbolizes past, present, and future. Below the central emblem is a green mountain range, with the wheel of destiny at the center. On the bottom of the mountain range and wheel is a khadag, a ceremonial scarf.

Books.

Dinosaur Lives: Unearthing an Evolutionary Saga (Harvest Book) (Paperback) by John R. Horner (Author), Edwin Dobb (Author), Celeste Clair Horner (Illustrator), Bruce Selyem (Illustrator), Terry Panasuk

Lone Star Dinosaurs by Louis Jacobs

Mongolia Websites

www.sunshine.mn/ mongolia.htm

http://www.mongoliatoday.com/

http://www.kiku.com/electric_samurai/virtual_mongol/index.html

Dinosaur Websites

http://pubs.usgs.gov/gip/dinosaurs/

dsc.discovery.com/dinosaurs/

http://www.kidsdinos.com/

www.dinosaur-world.com

http://www.e-mongol.com/mongolia_geography.htm

http://www.kidsturncentral.com/links/dinolinks.htm

http://www.enchantedlearning.com/subjects/dinosaurs/

http://www.search4dinosaurs.com/

http://easyweb.easynet.co.uk/~skafi

www.ucmp.berkeley.edu

One of the most famous Mongolians was Temujin, better known as **Ghengis (Chinggis) Khan**. He was born in 1162. When he was nine years old, his father, a chief, was killed by another tribe called the Tartars. During the next few years Temujin united all the tribes of the surrounding region, more than eighty groups of people in all, to create the Mongol Empire . He was made Khan (King) in 1206. By the time Chinggis Khan died in 1227, the Mongol Empire had become the most powerful nation on earth. In fact it was the largest single empire of all time.

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The Art of Exploration

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Bolortsetseg Minjin - Mongolian Paleontologist

Photo: Courtesy of Bolortsetseg Minjin

Bolortsetseg Minjin is a Mongolian paleontologist. She searches for dinosaur fossils in the Mongolian deserts where more than 60 species of dinosaurs have been discovered. Her specialty is the Cretaceous dinosaur Psittacosaurus. Bolortsetseg has been on paleontological expeditions with the Mongolian Academy of Sciences, the American Museum of Natural History, was co-leader of expeditions with Georgia Southern University, and was expedition leader for a joint expedition with the Museum of the Rockies. Her team found new fossil areas in Mongolia and collected over 100 skeletons of the dinosaur Psittacosaurus. In 2007 Bolortsetseg founded the non-profit Institute for the Study of Mongolian Dinosaurs (ISMD) in Ulaanbaatar. The goal of the Institute is to build a museum in Mongolia to study dinosaurs and to train young Mongolian paleontologists.

"I had this dream that I wanted Mongolian paleontology to be developed better, and I wanted Mongolian paleontologists to work on Mongolian species."

imagine NOTES

I was born and raised in Ulaanbaatar, the capital city of Mongolia. I first became interested in dinosaurs on my 9th birthday. My father, who is a paleontologist, brought a Russian movie on dinosaurs to my birthday party. My friends and I watched it, and I was fascinated by these large extinct animals. After that my Dad brought me to the natural history museum in Mongolia, where I first saw the skeleton of the dinosaur Tarbosaurus, the Mongolian version of Tyrannosaurus rex. It was amazing to think that these animals lived in Mongolia and that more skeletons of dinosaurs lie undiscovered in the Gobi Desert.

Dr. Minjin decided she wanted to be a paleontologist and studied geology in college. Then she received her Master's degree in Invertebrate Paleontology from the Mongolian University of Science and Technology. She came to the United States to continue her studies and got her Ph.D. in Earth and Environmental Sciences at the City University of New York.

I got my first chance to look for dinosaurs when I joined an expedition between the Mongolian Academy of Sciences and the American Museum of Natural History in 1996. There I found eggs of the dinosaur Oviraptor and skeletons of the dinosaur Protoceratops. I also found many skulls of the small mammals that lived alongside these dinosaurs. Since 2003 I have led expeditions to Mongolia and our expeditions have collected over a hundred skeletons of the dinosaur Psittacosaurus and found many new places to find fossils in the Gobi.

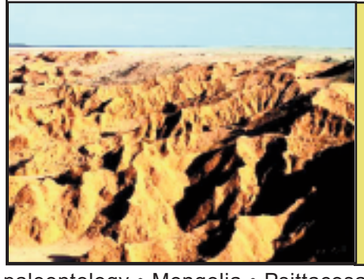
There are many reasons why Mongolia has lots of dinosaurs. First is the Gobi Desert. There is little vegetation there so that when it rains, it floods, and new fossils are exposed. The Gobi Desert has several active faults and several areas are rising up. Along the edges of the uplifted areas, fossils are often found. The Gobi has been arid for most of the last 65 million years, and this has also helped to preserve dinosaur fossils.

Bolar's advice: *The most important thing to becoming a paleontologist is to get a good education. Paleontology requires a solid background in geology and biology. So the more courses a student can take in these areas, the better. Paleontology is lots of fun, particularly finding fossils in the field, but it is also hard work too. Most paleontologists have their Ph.D., and to get this requires around 9 or 10 years of undergraduate and graduate school after high school.*

Paleontologists (from *paleo* - of prehistoric times + Greek *onta* - beings) are scientists who study fossils. Fossils are the remains of ancient plants and animals. They are usually found in layers of sedimentary rock. Sedimentary rock are made of up of mud, sand, or gravel that was deposited in layers, but was then compacted and cemented into rock over geologic time.

Scientists take fossil bones they find back to a laboratory where they study them to try to answer several questions, such as how old was the animal was when it died, what type of landscape did it live in, what older species did it evolve from, and how did the animal die? Many new discoveries are being made about dinosaurs all the time.

Bolor and her nephew Dolgoon Batbayar, 10th grade high school student digging for dinosaurs in Mongolia



The *Flaming Cliffs* is the area in Mongolia where most dinosaur fossils have been found. The region became famous in the 1920's with two important discoveries by explorer Roy Chapman Andrews and his fossil-hunting team. They found the first dinosaur eggs and the remains of the small mammals that lived alongside the dinosaurs. Today paleontologists from all over the world spend summers in Mongolia searching for dinosaur fossils. Over the last hundred years, many new species have been discovered in Mongolia, as well as footprints, nests with eggs, and the incredible fighting dinosaurs.

Psittacosaurus "parrot lizard," was a plant-eater that lived about 120 million years ago in the Early Cretaceous Period. It was an early member of the group of dinosaurs that would later give rise to horned dinosaurs like Triceratops. Dr. Minjin and American paleontologist Jack Horner from the Museum of the Rockies in Montana found 100 Psittacosaurus skeletons of many different ages during the summers of 2005 and 2006.

Things are not always as they seem ...
Oviraptor philoceratops "Egg Robber" (Andrews, 1924)
Roy Chapman Andrews and his team of paleontologists thought the fossil eggs they found in Mongolia belonged to the plant eating dinosaur Protoceratops. When bones of a different dinosaur were found near the nest, scientists thought this unknown dinosaur was stealing the eggs and was caught in a sandstorm that buried both dinosaur and eggs. So the dinosaur was named Oviraptor or Egg Robber. Later another nest was found with Oviraptor's bones on top of it – but a little farther away they found a similar egg with an Oviraptor embryo. They then realized that Oviraptor was on top of its own eggs, and that the eggs had been misidentified as those of Protoceratops. Paleontologists now think the mother Oviraptor was protecting her nest during a massive avalanche of wet sand. This amazing discovery completely changed our understanding of oviraptors and of other dinosaurs as well.

Tools Paleontologists take into the field:
Pick, GPS (Global Positioning System), Magnifying glass, Shovel, Chisels, Computer, Camera, Surveying tools, Water, Plaster bandages to wrap and protect the fossils.

Velociraptor

Velociraptor or swift robber
The Velociraptor lived in the late Cretaceous period about 70 million years ago. Although it was only the size of a turkey, it was a very effective predator. Its most famous characteristic is the "Killing Claw" it has on each foot, which was used to slash its prey. It was possibly warm blooded and had feathers on its arms and possibly its entire body.

Protoceratops Nest

Protoceratops
A nest of 14 young Protoceratops was found in the south Gobi desert. Because they were packed together and were all looking in the same direction, paleontologists think they might have been in a hole looking out.

Protoceratops

Protoceratops
'First Horned Face',
is a genus of sheep-sized (1.5 to 2 m long) herbivorous ceratopsian dinosaur, from the Upper Cretaceous Period