



Image by Zina Deretsky, NSF



Image from - <http://news.bbc.co.uk/1/hi/sci/tech/6145642>

What Was the Earth Like When...

The two main theories of the formation of the Gamburtsev Mountains connect to two very different times in the Earth's long history. You can use the USGS Geologic Time Spiral* as a reference to complete this section.



Collision – If the Gamburtsev's formed in the Cambrian, what was Earth like then? Remember the Cambrian was ~500 Ma! Marine species started before land species so marine invertebrates were abundant during that period. Trilobites (pictured here) were a diverse group of marine arthropods (meaning their skeleton was on the outside and they had a segmented body with jointed limbs) that appeared in this time period, and lasted about 250 my. Because there were so many Trilobites and they were found on every continent, scientists use their fossils to identify and study rock formations from this

period. Their connection to this very distinct time period makes them very useful in telling the age of the rock. For the Gamburtsevs they won't be useful since we can't get through the ice to the rocks to check for fossils, but they will help us remember the time period for this theory. **Trilobites range in size from a few mm to over 70 cms (over 2 feet!). If you chose collision as your mountain building hypothesis use this image to make your own trilobite** out of clay.**

Hot Spot: If the Gamburtsev's formed in the Cenozoic, what was Earth like then? The



Cenozoic was ~65 Ma, much later than the Cambrian, but much earlier than now! Dinosaurs had dominated our landscape in the period leading up to the Cenozoic period but they disappeared abruptly. In fact not only dinosaurs disappeared but scientists believe about half of all the living species on Earth (both animal and plant) became extinct at this time, this includes the majority of the marine plankton. We don't really know. We lost the largest reptiles during the Cenozoic, but many plants and mammals began to thrive and grew very large. Some species of birds (like in this image), beavers and other creatures grew to be seven feet in size! **Create your own creature of the Cenozoic modeled after a creature you have read about or know about today. Now**

give it a name, plan what it will eat, where it will live (water or land), what will be its predators, and what will cause it to go extinct.

* The USGS time spiral is available for download as a poster at this url (<http://pubs.usgs.gov/gip/2008/58/>).

** (For more images or for more on trilobites check this website <http://www.trilobites.info/index.htm>)

The Geologic Time Spiral—A Path to the Past

