The Geological Story of the Flinders Ranges

The geological history of Earth goes back 2.5 - 3.5 billion years.

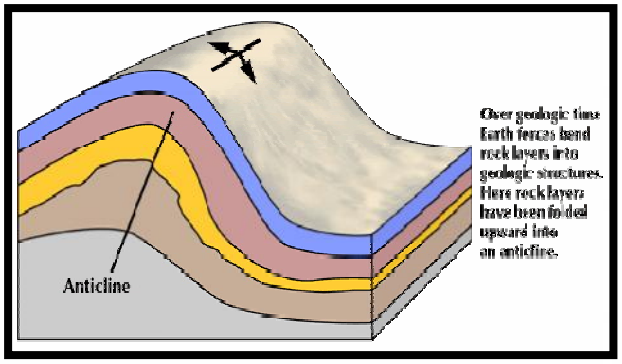
The Flinders Ranges are made up of some of the oldest known rocks in the world, dating right back to when the continents were being formed by the movement of the tectonic plates.

In these extremely ancient times there was a large, long depression, about 1,000 kilometres long and several hundred kilometres wide, running from the northern edge of the Flinders Ranges down through the Mt Lofty Ranges, the Fleurieu Peninsula and Kangaroo Island.

This depression has been given the name Adelaide Geosyncline. It occurred along the edge of an ancient super-continent called Rodinia. Large layers of sediment, e.g. silt and sand, were deposited in this depression.

About 450 million years ago, during what is known as the Cambrian geological period, significant movements in the Earth's crust caused these layers of sedimentary rocks to be folded into a mountain range. The top of a fold in a mountain range is called the anticline and the bottom the syncline.

Naturally there was a lot of pressure and heat from the friction involved. (This changes the nature of the sediments, i.e. layers of sand became harder crystalline quartzite. Shale becomes slate.) The layers of rocks changed from being sedimentary to metamorphic (to metamorphose = to change).



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The ridge-tops of the Flinders Ranges are composed of this hard quartzite. Many layers of rock making up the ranges have eroded away over the millions of years since their formation and now are only very low in comparison to their original size. The area has also seen igneous activity.

Because the Ranges contain some of the oldest rocks in the world they also contain the oldest fossils, i.e. Ediacara and Archaeocyatha.