Unconformities

Defined as a buried surface of erosion. It was the land surface where you could stand before it was covered up by more deposition.

1. <u>Angular unconformity</u>---the easiest one to recognize because the rocks below the unconformity are at an angle (dipping) to the unconformity and are the rocks above the unconformity are parallel to the unconformity. The Great Unconformity in the Grand Canyon is an angular unconformity.

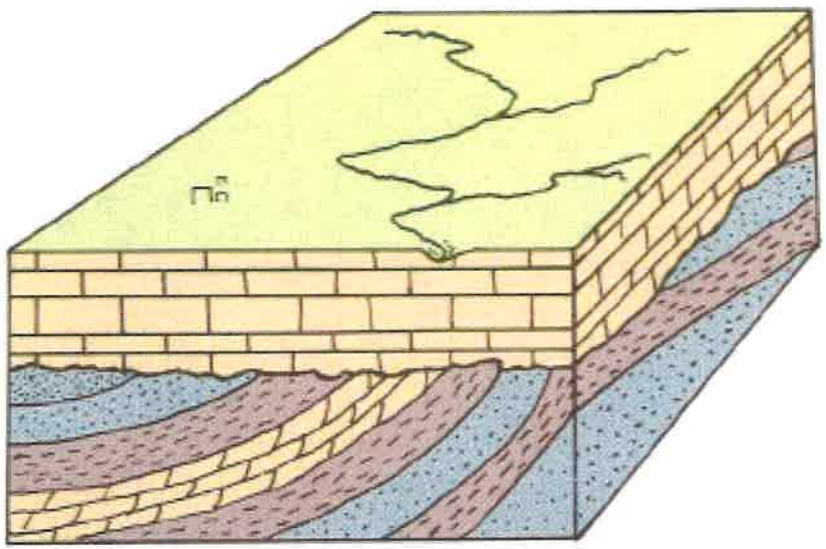
2. <u>Nonconformity</u>---igneous (like a batholith) or metamorphic rocks below the unconformity and parallel bedded sedimentary rocks above the unconformity. The differences in rock types makes this type of unconformity reasonably easy to recognize.

3. <u>Disconformity</u>---parallel bedded sedimentary both below and above the unconformity. If there is relief on the unconformity, this type can be recognized relatively easily. Such is the case when you leave Cookeville going east on I-40. Near Monterey you can see the undulating surface. Often time you can find coal formed from plants growing on the surface before it was buried.

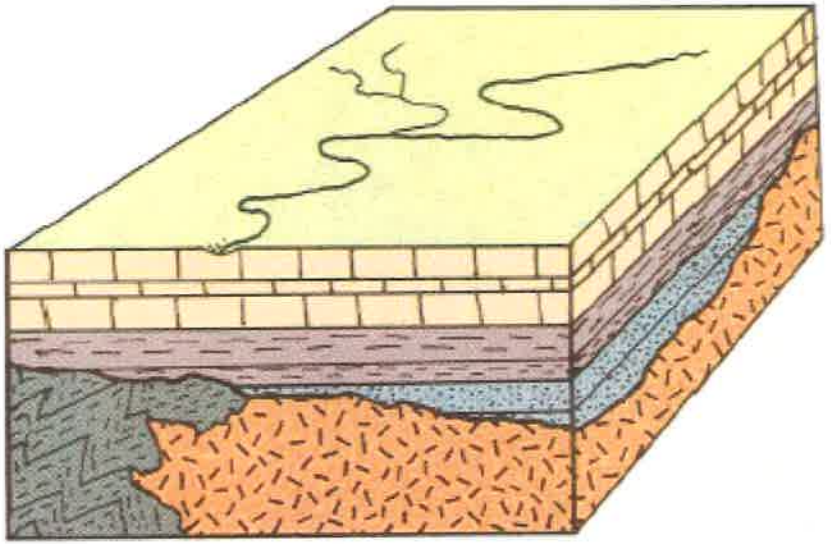
If there is no relief on the unconformity, this type can be difficult to recognize. Such is the case when you leave Cookeville going west on I-40. As you go downhill from the Silver Point exit toward the Buffalo Valley exit, there is a black shale on top of a limestone. The contact with no relief between these two rock units is a disconformity. About 70 million years of time is missing in these rocks. How do we know?

If you had a book and in looking at it you noticed that you went from page number 50 to page number 100, you would know part of the book was missing. There could be one of two causes. Either the missing pages were never included in the book (geologically called non-deposition) or the pages were there initially but have been torn out (geologically called erosion).

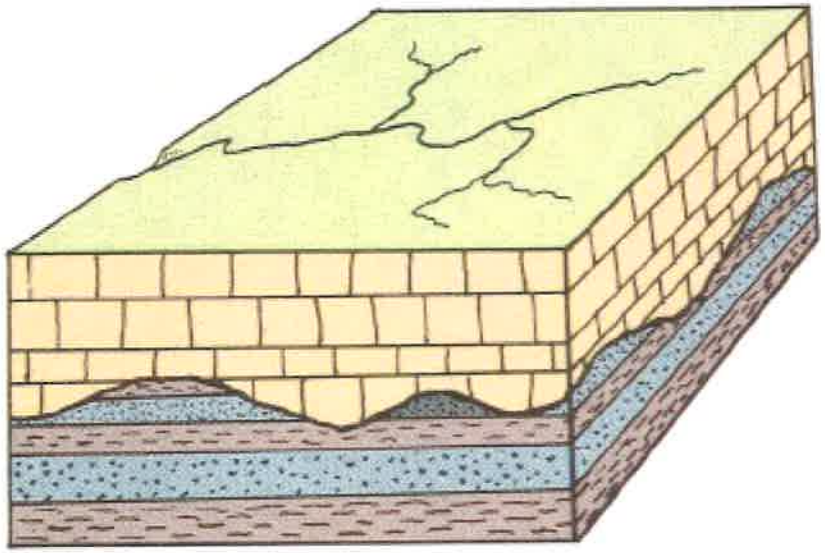
Geologists don't have page numbers as such in the rocks, but we do have fossils. Plants and animals change systematically through time. When the fossils that should continuously be in the rocks record are not there, we know part of the rock record is missing and thus a disconformity.



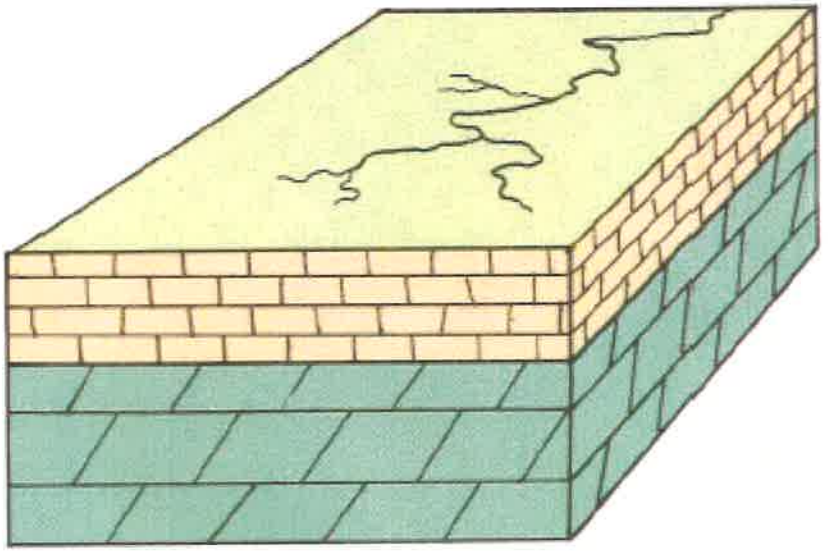
A



B



C



D