

Geology of Big Basin—What's in a name? *By Mike Humenik*

The landscape of Big Basin reveals the dynamic and ever-changing area that we in coastal California live in. Most (but not all) of the changes are slow enough that even the redwoods don't notice. Nonetheless, the forces are powerful almost beyond comprehension and are responsible for the landscape we see today.

The rocks that make up Big Basin are mostly tertiary sedimentary rocks. "Tertiary" rocks are from the time period between the extinction of the dinosaurs about 60 million years ago and the "Quaternary" period beginning two million years ago. These rocks are the debris from older rocks that were eroded and then deposited in the ocean when the area that is now Big Basin was under water. The rocks rest on top of a layer of granite called the "basement rock." The granite rose, as a hot liquid, toward—but not above—the surface and cooled about 80 million years ago. This granite is well exposed along Ben Lomond Mountain.

The granite and metamorphic rock, as well as the sedimentary on top, are part of a huge chunk of land known as the Salinian Block, measuring about 50 x 300 miles. The block is bounded on the east by the San Andreas Fault and on the west by the Sur-Nacimiento Fault. This block is a chunk of the North American Continental Plate that was torn out of the continent and is being dragged north by the movement of the Pacific Plate. At one time area that is now Big Basin was about 200 miles south of its present location. The Park itself is cut through by the Ben Lomond Fault—related to the San Andreas. The fault runs more or less east-west and is just south of Park Headquarters near Berry Creek Falls.

During the last 60 million years, the land south of the fault has risen 6,000 to 10,000 feet compared to land north of the fault. This uplift is responsible for the creation of Eagle Rock, Mt. McAbee and Pine Mountain. As the land rose, East Waddell Creek continued to cut through the rock on its way to the ocean. Occasionally, fault movement would raise the land south of the fault line and dam the creek, creating a lake. The lake would collect sediment on its bottom and eventually the channel would be reopened and the lake would drain. The "Big Basin" that gives the park its name is one of these former lakes.

Big Basin is seen to be full of evidence that the park isn't as serene as it may appear to the casual hiker's eye. These processes are still going on...the Salinian Block continues slow migration north and Eagle Rock is still on the rise. Waddell Creek is still cutting its way through the rock and massive slides continue to change the faces of the mountainsides.

The Ben Lomond Fault is a major force in the development of the park landforms, uplifting peaks such as Eagle Rock and creating basins on the opposite side.

