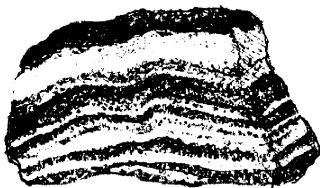




Geology

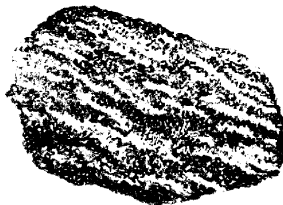
Rocky Mountain National Park is, in many respects, a huge outdoor geology museum. Spectacular vistas of nature's handiwork are readily accessible from your automobile and along more than 346 miles of trail. The park offers classic examples of geologic uplifts, erosion, and glaciation. Rock formations in the park are among the oldest in the United States. Mountaintops flattened by the relentless forces of erosion dominate a landscape of steep slopes, U-shaped valleys, crystal clear lakes, and moraine deposits left by glaciation.

ANCIENT ROCKS



Gneiss

The park's oldest rocks were formed when crustal plate movements subjected deeply buried sea sediments to intense pressure and heat. The resulting metamorphic rocks (schist and gneiss) are thought to be 1.7 billion years old.



Schist



Granite

These metamorphic rocks were later intruded by magma which cooled some 1.4 billion years ago to form crystalline igneous rock (mostly granite).

UPLIFT AND EROSION

About 70 million years ago, an era of uplifting began. Giant blocks of ancient crystalline rock, overlain by younger sedimentary rock, fractured and were thrust upward. Even as the uplift occurred, streams started eroding away the sedimentary rock and washing new sediments both to the east and west. After the sedimentary rocks were mostly gone, erosion continued to level the ancient Precambrian rocks until only a few isolated remnants projected above the gently rolling landscape. The gentle slopes seen atop Trail Ridge and Flattop Mountain are what remains of this pre-glaciated landscape.

Some 25 million years ago, volcanic deposits of younger igneous rock were laid on top of older Precambrian formations.

These volcanic rocks can be seen in the park's Never Summer Mountains, on Specimen Mountain, and along Trail Ridge Road at Lava Cliffs.

Faulting and upwarping continued to lift the Rocky Mountain Front Range as much as 5,000 feet. By two million years ago, the present heights above 12,000 feet had been attained. Sedimentary layers on the eastern plains had tilted toward the mountains. Stream erosion of these tilted rock formations produced hogback ridges near the present towns of Lyons and Loveland. Differential movement along faults disrupted drainage patterns, creating higher mountains, waterfalls, and large valley areas such as in Estes Park and the Kawuneeche Valley.