

The effects of alternation in hard and soft layers, distantly spaced or grouped, appear throughout the scene. Besides, there are columnar lines due to vertical joints in the harder beds, or to rill-work down the vertical and sloping surfaces.

178.



Marble Cañon. From a photograph.

The rock of the level region either side of the cañon, and of the upper part of the walls, is Carboniferous limestone. Below are Paleozoic sandstones and other limestones, descending to the Cambrian; at bottom, in some parts, and for a height of 500 to 1000 feet above, the rocks are granitic.

Many views of the Colorado Cañon also show ranges of flat-topped mountain heights to the north, all of which have similar architectural features in their declivities, yet with peculiarities belonging severally to the rocks of the different periods represented. As described by Dutton, first, in the ascent to the summit, there are the Triassic "Vermilion Cliffs"; above these the white and red Jurassic; then the pale yellow, gray, and brown Cretaceous strata; and at the top great plains, the High Plateaus of Utah, the highest nearly 12,000 feet above sea level, which, unlike the slopes, are covered in some parts with forests. The vegetation at the summit is accounted for, says Dutton, by the fact that the rainfall there is 30 inches a year, while only four to eight inches in the lower country. These mountain plateaus are remnants of formations that once covered the cañon region and extended far away into Arizona.