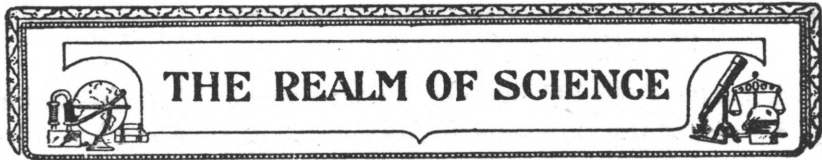

*William F. Rigge, S. J.

THE GRAND CANYON

HE Grand Canyon of the Colorado River in Arizona is unquestionably one of the greatest natural wonders of the world. It is altogether unique in its kind, in its grandeur and in its magnificence, and especially in its magnitude, which is by far its most impressive feature and deserves for it the appellation of the Titan of Chasms.

In its nature the Grand Canyon is very simple; it is a gulley or a valley cut by a descending torrent of water. We have all of us seen places in Omaha denuded of their protective covering of vegetation by recent grading. We know what a heavy rain will do to such an exposed soil. It begins at once to cut irregular furrows into which the water from adjoining spots runs with increased violence. The furrows rapidly develop into ruts and into deepening and widening miniature gulleys and gorges. Many of these soon unite into deeper and wider gulleys, into which the waters pour in torrents with ever-maddening fury. The harder materials, according to their powers of resistance, are pushed and rolled along by the waters, or are undermined and capsized, or are circumvented and left standing with scarred, battered and escarped sides. Graders and property owners know what havoc a single rain can work.

On a larger scale the same action of running and descending waters has carved the gulleys and gulches on our hill and mountain sides. And the unequal resistance offered by the various rocks has given them that endless and pleasing variety that we love so much to admire, from the broad and gently sloping valley to the steep and precipitous gulch and canyon.

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That the Grand Canyon of Arizona was cut and chiseled by the waters of the Colorado River is evident to every beholder. But then the scale is so enormous that we wonder at the length of time that must have been necessary, and why this Grand Canyon should be so alone in its magnitude and in its variety.

Running water has surely done the work, but probably there were other geological forces in its employ. One of these was the weathering of the rocks. Alternating heat and cold, but especially the freezing of the water brought there by rains or snows, broke the surface rocks to pieces and made them crumble and then fall upon projecting ledges or terraces. As this action continued, the ledges and terraces often became so filled with the accumulated debris that they could hold no more, so that they present the appearance we notice when sand or soft material is dumped from the same chute, a fan-like, smooth and conical little hillside called the talus by geologists, in which the soft or broken material soon assumes a certain angle of repose. This talus is a very prominent feature in the Grand Canyon.

Weathering often carves the rocks into most fantastic features. It can form isolated peaks or pyramids. It can eat out the softer material and leave the remaining rocks so loosely joined or poised that we feel sure the next rain or storm will hurl them down into the abyss.

The coloring of the rocks in the Grand Canyon is, as a rule, not overdrawn in its pictures. With the white limestone, the gray talus, and the drak red granite, we have unlimited combinations of color, which is tinged green in places by vegitation.

The scale of the Grand Canyon is so gigantic that one must recast all one's former estimates of size and distance. Outside the low guard wall of the hotel grounds, the descent is so abrupt that no wingless creature could dare attempt it. The eye soon loses its scale and imagines the green place called the Indian Gardens to be a level grass-covered plain, so near that a stone might be thrown into it. And yet, according to the elaborate map made by the government surveyors, which is

framed and exposed to view in the hotel, the Indian Gardens are about two miles distant in a horizontal direction and more than half a mile in a vertical direction. Near their further end is a minute white speck which a keen eye may discern to be wider than it is high. A large telescope shows this to be the side of a house. And near it, one may see tiny black dots moving about slowly. These dots betray no shape, and they are the smallest objects I have ever seen, in which the contrast between them and their background is very moderate. These dots proved to be tourists on their burros. The Cheops Pyramid, which I estimated to be a mile away, is nearly four miles distant according to the map. The nearest point on the opposite side of the Canyon on the Kaibab Plateau—the hotel being on the Coconino Plateau—is about eight miles away, and the farthest point of the Bright Angel Canyon over thirteen miles. And the river is more than a mile below the level of these plateaus.

Thanks to the Sante Fe Railroad, the Grand Canyon is readily accessible. Through continental trains may be boarded that make a detour from the main line at Williams in Arizona, run up to the Grand Canyon and arrive there in the morning at about eight o'clock. Travelers may spend the day at the Canyon and re-enter their own train and berth at eight o'clock in the evening. Longer stop-over privileges are easily granted.

The hotel at the Canyon is named El Tovar, after the Spanish discoverer. It presents all modern conveniences and has cost more than a quarter of a million of dollars. It can accommodate 175 guests. When we reflect that every item at the hotel, even every drop of water, must be carried there by rail from a distance of over one hundred miles, the charges, which might seem excessive in a large city, are indeed moderate.

The site of the El Tovar hotel is the finest that could have been chosen. The hotel grounds extend to the brink of the precipice, and command a view unequalled in beauty, variety or distance. It is amusing, but also instructive, to sit on the benches facing the Canyon while the shades of night are falling and concealing the identity of one's neighbors, and to listen to the remarks of

the tourists relating their day's experience. They are surely varied and contradictory. One, evidently an independent and well-to-do business man, somewhat young in years, was urging his mother to take every offered trip so that she would be able to affirm she had seen everything there was to be seen. A second, surely more elderly, said he had paid his four dollars and taken the drive to Grand View thirteen miles away, but had found the hotel and the view there much inferior to El Tovar. Besides this, the road was mostly through a forest and offered few glimpses of the Canyon—it was by no means a rim drive. A third, also an elderly gentleman, had taken the eight-hour trip by burro down to the river on the Bright Angel Trail. While the trip was worth five dollars, the meagre lunch of buns and sandwiches was not sufficient for one accustomed to regular meals at regular times.

From this and similar talk that one could not prevent overhearing, the conclusion seemed convincing that it was worth one's hotel and railroad fare merely to sit at the brim of the Canyon in the hotel grounds and enjoy the view at one's leisure, at early dawn, throughout the day as the shadows were shifting and bringing various parts into proper relief, at evening tide, when the sun was setting and the abysses were growing darker and invisible, and then by the bewitching moon, which, in that pure sky seven thousand feet above sea level shines with unwonted brilliancy. The general impression will then be grander and more comprehensive, and will fill one's mind with gratitude for this sublime gift of our kind Creator.