

## **Water and the Desert**

Natural life in the deserts of America is a rare thing. It is not easy for people to make a life for themselves in a hostile environment. The Rio Grande River and other smaller tributaries in the state of New Mexico make it a unique place of abundance. As noted by Dr. Eldred Harrington in his article ~~%~~Water and the Desert+, some of the most influential and important civilizations called the desert home. These civilizations made massive contributions to the global population in many forms, including writing, art, and engineering. However, their most powerful invention was irrigation. Beyond the simple fact that these people would not be able to form the large scale societies in the harsh desert environment without irrigation, this invention allowed for agriculture and new engineering solutions.

Even outside of the Middle East and much later in history than the Ancient Civilizations, communities in the Southwest of the Americas were experimenting with hydrological design in their irrigation systems. Local New Mexican Native American tribes living in areas, such as Mesa Verde or Pueblo Bonito, have been able to create a home with abundant crops all with less than ten inches of rain each year. These early and primitive irrigation projects involved moving water across difficult terrain and situations. There are examples of canals carved into solid rock and even flumes constructed where there was no ground to carry the water. Also, to add a time scale to this massive projects, most of them were built 500 years before Columbus arrived in the Americas. This was the early days of Civil Engineering, the crafts people of the time had not surveying tools or levels to carve channels into the earth. They would work together and improve on the old designs of past engineers. For example, one generation may dig the channel, the next may expand the channel, and the next may add brush dams.

It is important to consider the demand of people living in the desert with the limited water resource. These ancient irrigation engineers did what was necessary for them and their communities to survive. Dr. Eldred Harrington closes this chapter with a reminder that water is society's greatest resource. Moving into the second half of the 21<sup>st</sup> century it is crucial for all Civil Engineers to remember to protect and consider the local environment while designing a project, especially in regards to water.