

Patience Raby

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Dr. Eldred Harrington Scholarship *An Engineer Writes about People and Places and Projects* Summary

In Dr. Eldred Harrington's article "Let Us Build a Dam Here" he discusses a brief history of dams and what they have meant to civilization over time. While dams are the main topic in this article, he takes the chance to dive deeper into the grand responsibility of engineers to not only always get it right, but also to please the customer simultaneously.

The article begins with the question: Why? Dr. Harrington explains why humankind's interest was piqued by dams and why we began to build them in the first place. The most obvious reason was so that we could create reservoirs and attain a higher accessibility to water year-round. Mind you, there are a multitude of reasons for a group of people to want a dam (for example: irrigation, generating electricity, flood control, recreation – the list goes on). The thing about dams is that they tend to have many facets that complicate the matter. Many people play a role in the planning, funding, and approval of a dam. To make matters worse, there tends to be a conflict between the public opinion and the engineering that goes into constructing a dam. Dr. Harrington points out that a dam must meet the following 3 criteria: (1) It *must* be safe for those downstream. (2) It *must* be placed at a site where a water-tight dam can be built. (3) The dam *must* be built at a site where the reservoir will hold water. His three criteria can be difficult and sometimes even *impossible* to attain for any given scenario.

Dr. Harrington touches on the duty of civil engineers to design structures and systems that will work safely and the consequences that exist if this duty is not met. With respect to the public view on an engineer, he states, "The engineer must always be right, or else." This is a great vote of confidence, but it is also a great hazard in the profession. The engineer is often expected to know it all and be able to make anything work, under every circumstance. Despite this being a burden at times, it is also a key aspect of what makes the profession so fulfilling. Dr. Harrington goes on to discuss how an engineer must prove that they are as good as they say they are time and time again. A project that is executed phenomenally across the board is never quite enough to fully prove yourself for the next big project.

Some examples of dams gone wrong are given. The Hondo Reservoir near Roswell, NM, was constructed in 1907 at a location that was largely gypsum. After construction, the gypsum did not keep water from draining down into the Earth – resulting in a dam built, but no reservoir. Just because there is water, does not mean a natural reservoir can exist. There have been a multitude of occasions across the

engineering field where something has been built despite calculations and science suggesting it's a no-go. This has often been a grave error and as well as a quick lesson learned.

Overall, this article paints a clear picture of the success and trouble that dams have caused over the many years that they have existed. Today, the construction of dams has almost come to a complete halt. Building and upkeeping dams has become extremely expensive and can contribute much to climate change and harming surrounding environments.