The Great Pyramid at Giza

"Man fears Time, yet Time fears the Pyramids."

—Arab Proverb

Overview

The Great Pyramid at Giza is the oldest, and only surviving pyramid of the Seven Ancient Wonders. Most of us know at least some of the factual details: The largest pyramid was commissioned by the Egyptian Pharaoh, Cheops, while his sons commissioned the two smaller ones as burial chambers. Each took over 20 years to build, and were completed almost 5,000 years ago. That time scale is almost impossible to comprehend—these imposing figures were there—just as they are today—more than 20 centuries before Alexander the Great or Aristotle were born! If you're interested (and we hope you are), you can research information about the pyramids at Giza. For example, you can discover how many blocks were used to make these pyramids, how tall they are, and how much they weigh. While researching, you may discover the fact that they're ***perfectly*** aligned with the true north and south, and that the sides of the 751' square base have an error of less than 0.1%. You may also learn that they contain enough blocks to build a 10' high wall around France!

But these facts, however interesting and amazing, don't reveal too much about a very simple question: So what? We're tempted to ask: All this for a grave site? OK. Aside from the fact that they've lasted a long time, and were built without the benefit of electricity or bulldozers, how do these things affect me? Today. Well, let's see:

Try to imagine, if you can, living in a world where machinery is mostly unknown, where structures larger than about 30 feet high are unbuildable, where the forces of nature seem mysterious, unknowable and capricious; where most of your waking life is spent searching for food, shelter, and a more favorable living environment. This is a world without the language of mathematics. Fortunately, thanks in large part to the pyramids, we don't have to live in such a world.

The genesis of today's universal mathematical language as a formal, structured, and organized statement of relationships was first laid down by Euclid, a Greek, who lived in Alexandria, Egypt (a stone's throw from Giza). Now, of course, people knew about lines and angles, and so forth, long before Euclid, but this knowledge was never codified and committed to writing. So what happened to produce a Euclid? We know from his other writing that Euclid was profoundly moved by these giant stone monoliths. He was almost obsessed by the cleverness of the architects and builders. He realized that they MUST have

used models—scale drawings—to work on the intricate details of the construction. And when he thought about using such models and drawings, he realized, by some magical quality of human interpretation, that what he was looking at was a systematic structure of "speaking," or describing the relationships of lines and points to one another. The idea of making a scale drawing—that something on a small scale could reveal necessary and important truths about a similar object of a much larger size—was an idea that came out of ancient Samaria, which the people who built the pyramids "borrowed!"

From this overpowering attraction came the inspiration that produced a 13-volume book, ***Elements***, one of the most influential works ever published. For twenty-four centuries it has been studied and translated into every major language on earth. All mathematical and scientific languages use the model and method established by Euclid. It has actually survived 24 centuries without modification, correction, or replacement!

Besides Euclid, countless others have been inspired by the sight of these incredible structures. Remember the theme: ***an audacious vision, seemingly impossible at the time, leading to far-reaching and totally unintended consequences***. You'll see this theme repeated often!

Professions and Trades

The design and construction of the pyramids required the application of the talents of dozens of professions and specialized trades. The logistics support problem must have been enormous.

Consider the following partial list:

- Architect
- Astronomer
- Clergyman and other religious specialists
- Clerical Specialist (accountants, book keepers, etc.)
- Food Service Worker (farmers, chefs, cooks, etc.)
- Health Care Worker (physicians, nurses, etc.)
- Hydraulic Engineer
- Materials Engineer
- Mathematician
- Mechanical Engineer
- Mortician
- Quarry Worker
- Soil and Foundation Engineer
- Stone Mason
- Structural Engineer
- Transportation Specialist (land and water)

How many others can you think of?