

Inka Engineering Innovation Quotes

1. “These bridges were incredible works of technology for their time and even today, because they were able to span long distances with short fibers acting in tension. The Inka Road system was used to transfer goods and people throughout the Empire and so the bridges had to be strong and durable. What made the Inka suspension bridges so extraordinary was the scale of their spans. They were crossing very large distances over canyons, very high above the water often times, and they had a high load capacity.”
— Massachusetts Institute of Technology (MIT) Professor of Engineering Dr. John Ochsendorf, 2015

span: the length of something or the distance between two points, especially between the structures that hold up a bridge

tension: describes the pulling force or the force that is transmitted through a string, rope, cable, or wire when it is pulled tight by forces acting from opposite ends

durable: able to last a long time without being damaged

scale: relative size or extent

load capacity: the weight that a structure is designed to carry without collapsing

2. “In Spain and the rest of Europe at the time of the Inka Empire, most bridges were built as short arch spans which were acting in compression. By using tension, the Inka engineers were able to span much longer distances than the bridges in Europe at the time.” — MIT Professor of Engineering Dr. John Ochsendorf, 2015

arch span: An arch bridge is built with supports at each end and is shaped in the form of a curve. The “arch span” is the distance between the supports built at either end of the arch

compression: the action or state of being squished down or made smaller or more pressed together

3. “When we're building a suspension bridge a crucial question is, how strong is the cable? The Inka made remarkably strong cables using small fibers and were able to make very strong cables by starting with weak elements, but then twisting them together to achieve great strength.” — Massachusetts Institute of Technology (MIT) Professor of Engineering

Quotes

Dr. John Ochsendorf, 2015

4. “Beginning with something that's quite weak that you can break with your hand, but then twisting it and braiding it together, Inka engineers were able to create cables that could support thousands of pounds. These very strong cables were capable of supporting heavy loads across the deep canyons of the Andes.” — Massachusetts Institute of Technology (MIT) Professor of Engineering Dr. John Ochsendorf, 2015
5. “For me the significance of the Q'eswachaka is that it helps us to understand Inka organization, Inka engineering, the ability to problem solve with limited materials. That really is what engineering is all about, trying to do a lot with a little.”
— Massachusetts Institute of Technology (MIT) Professor of Engineering Dr. John Ochsendorf, 2015

Paraphrased Quotes

1. These bridges were incredible works of technology for their time and even today, because they were able to go across long distances using short grass fibers creating a pulling force, or tension. The Inka Road system was used to move goods and people throughout the Empire and so the bridges had to be strong and last a long time. What made the Inka suspension bridges so awesome was how long they were. They crossed very large distances over canyons, very high above the water, and they supported a lot of weight. — Massachusetts Institute of Technology (MIT) Professor of Engineering Dr. John Ochsendorf, 2015
3. When we're building a suspension bridge an important question is, how strong is the cable? The Inka made remarkably strong cables using small fibers and were able to make very strong cables by starting with weak individual fibers, but then twisting them together resulting in great strength. — Massachusetts Institute of Technology (MIT) Professor of Engineering Dr. John Ochsendorf, 2015