Who, What, Where, and Why?

by John Norton

Test Your Knowledge of Engineering History

Editor's note: John Norton, Jr., a doctoral candidate at the University of Michigan, has graciously volunteered to prepare this regular column to test the wit and skill of the geo- community.

1. One of the most well known geotechnical relationships is named after this French physicist, who also served nine years in the West Indies as a military engineer. His first military assignment, in 1761, was to build a fort on the island of Martinique, and he was put in sole charge of 1,200 men. Although the conditions were appalling, and many men died due to tropical illnesses, this future scientist developed a great interest in such engineering subjects as hydraulics, dry docks, and underwater construction using diving bells.

In 1789, poor health forced him to retire from the military and he turned to the investigation of electromagnetic energy. He improved the torsion balance to help his study of small electrical forces, and is known for his work on friction, elasticity and electrostatic forces. The unit of electrical charge is also named after him. This individual's name is?

2. By the late 1800s, the growth of the young United States drove construction onto marginal soils and considerable effort was expended to understand the foundations required. One of the most common foundation types was the pile. Numerous engineers tried to determine a pile's load capacity based on the effort required to drive the pile into the ground.

In 1888, this investigator published an equation in the Engineering News using the energy method stating, "...I claim in regard to that general form that it includes in proper relation to each other every constant which ought to enter into such a theoretically perfect practical formula, and that it cannot be modified by making it more complex...." The formula has since been modified hundreds of times. Who was this confident (some might say cocky) individual?

3. Every great project or idea instigates resistance, and this self-trained engineer encountered no different as he built the first bridge across the mighty Mississippi in St. Louis. While previously working in marine salvage, he experienced the driving, scouring sands of the riverbed as he walked across the bottom of the Mississippi in a diving bell.

But the technical challenges paled compared to the political ones. He had to fight steamboat-shipping companies, chicken-hearted building officials, and the vagaries of new materials to finally finish construction of the bridge in 1874.