Impact of a Major Earthquake - San Francisco, 1906

This historical footage, shot by the Edison Company soon after the 1906 San Francisco earthquake and fire, depicts the widespread impact of the disaster.

At the time, the theory of plate tectonics had not yet been developed, and scientists were surprised at the extent of the quake. It ruptured the northernmost 296 miles (477 kilometers) of the San Andreas fault.

Beyond the fault rupture, the 1906 quake puzzled scientists because of its large, horizontal displacements and the resulting strain on surrounding crust.

Analyzing what had happened, and studying the available data, Harry F. Reid (then professor of geology at Johns Hopkins University) developed his elastic-rebound theory. The USGS summarizes that theory, as follows:

> *From an examination of the displacement of the ground surface which accompanied the 1906 earthquake, Henry Fielding Reid, Professor of Geology at Johns Hopkins University, concluded that the earthquake must have involved an "elastic rebound" of previously stored elastic stress.*
>
> *If a stretched rubber band is broken or cut, elastic energy stored in the rubber band during the stretching will suddenly be released. Similarly, the crust of the earth can gradually store elastic stress that is released suddenly during an earthquake.*
>
> *This gradual accumulation and release of stress and strain is now referred to as the "elastic rebound theory" of earthquakes. Most earthquakes are the result of the sudden elastic rebound of previously stored energy.*

The 1906 quake would not be the last time San Francisco endured such a tragedy. But as the years passed, scientists learned more, and architects/builders now use what scientists have learned to construct buildings which can hopefully minimize earthquake damage.

Credits:

Historic film footage by Thomas Edison Film Company. Video clip online, courtesy the Library of Congress.

Information about the elastic rebound theory, and the quoted passage, from the USGS (United States Geological Survey) web site.

See Alignments to State and Common Core standards for this story online at:
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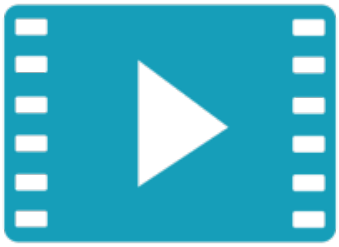
Media Stream



Continental Drift and Plate Tectonics - Background
Clip, online courtesy Phoenix Learning Group Channel at YouTube.
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