

Special Report | **SAN ANDREAS FAULT**

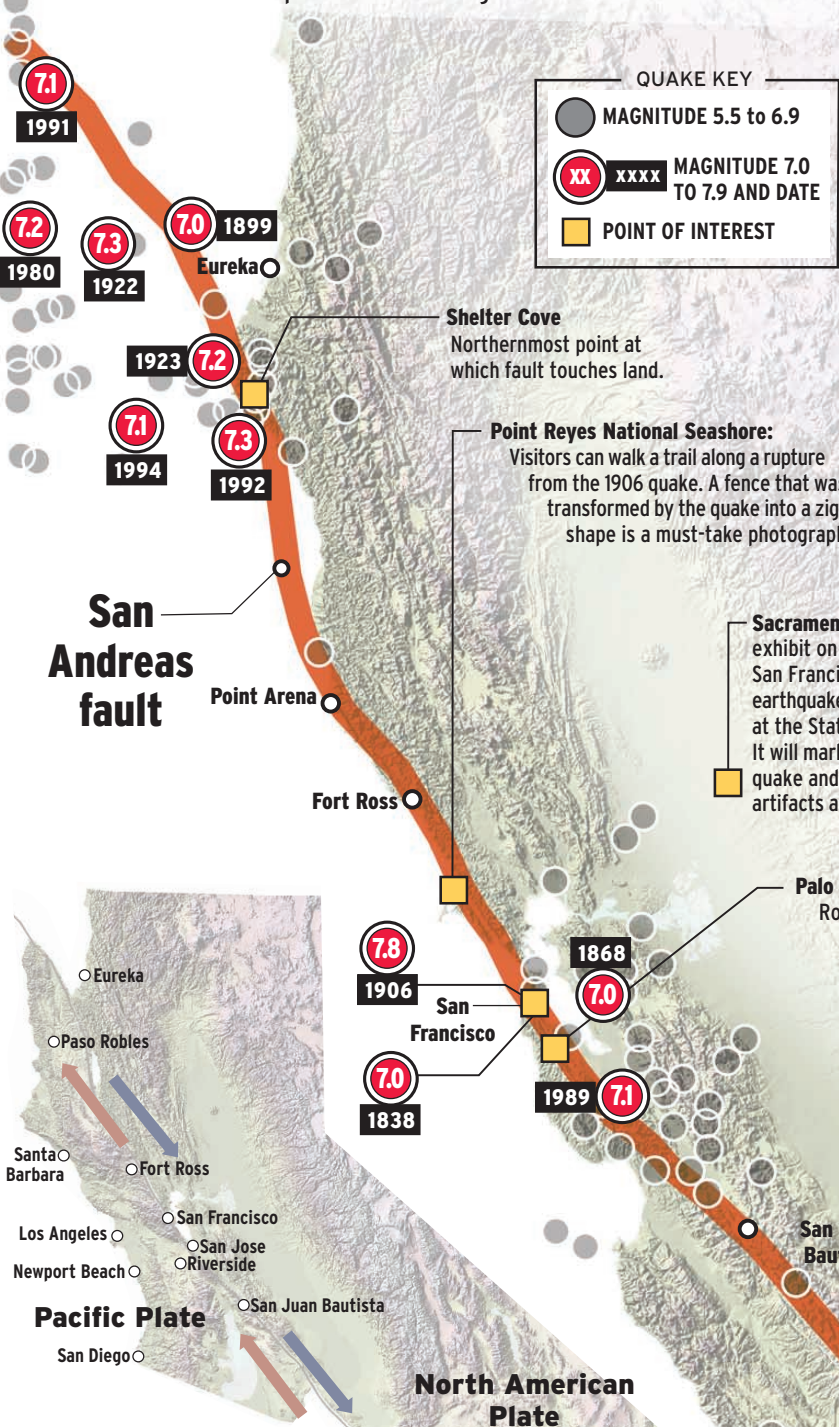
TOURING THE MIGHTY

SAN ANDREAS FAULT

A hundred years ago, the San Francisco quake gave birth to the modern study of earthquakes and led to the discovery of the San Andreas fault. But temblors haven't simply shaped California's landscape, they have affected its culture as well. When an earthquake strikes, many Californians nonchalantly ride it out. After the shaking ends, one sport is to guess the magnitude and epicenter. Here are tips on what you can tell from the rocking and on sights around the Golden State honoring the phenomenon that, every so often, shakes up our lives.

Major quakes and points of interest

California has thousands of faults, but the largest is the 800-mile San Andreas. Here are locations of the 160 quakes magnitude 5.5 or higher that have struck since 1800 near the fault and quake-related sights to check out:

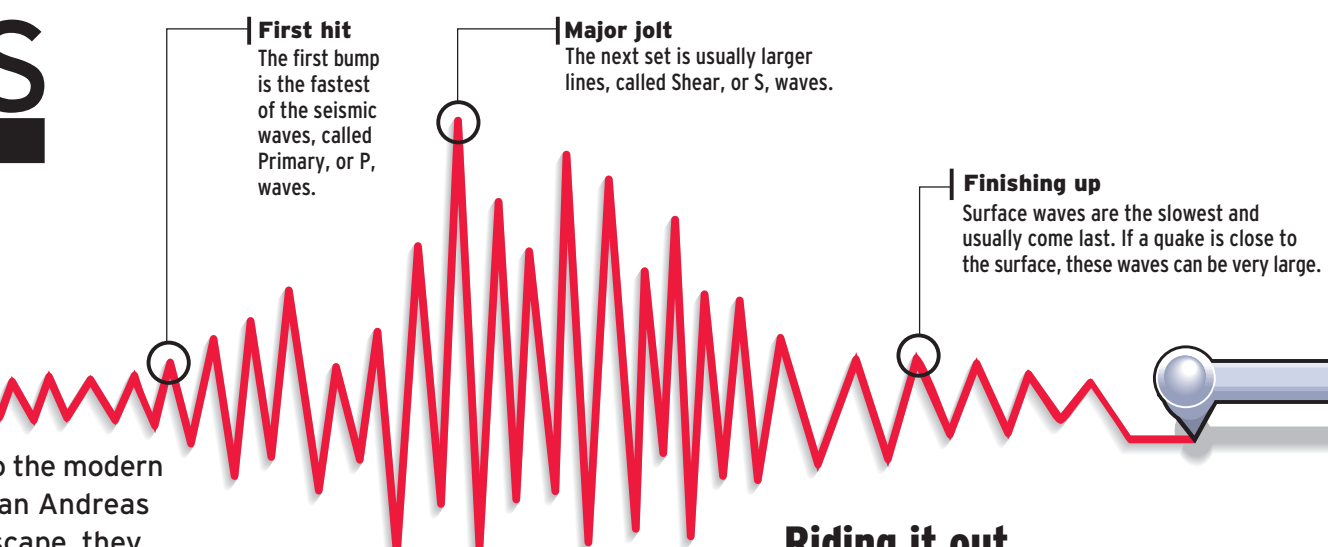


L.A. moving to S.F.?

The Pacific Plate is creeping northwest past the North American Plate at an average rate of 2 inches per year. In the 1906 San Francisco quake, the plates in some places moved 21 feet. Scientists estimate that it will take about 12 million years before Los Angeles and San Francisco are side by side, geographically at least.

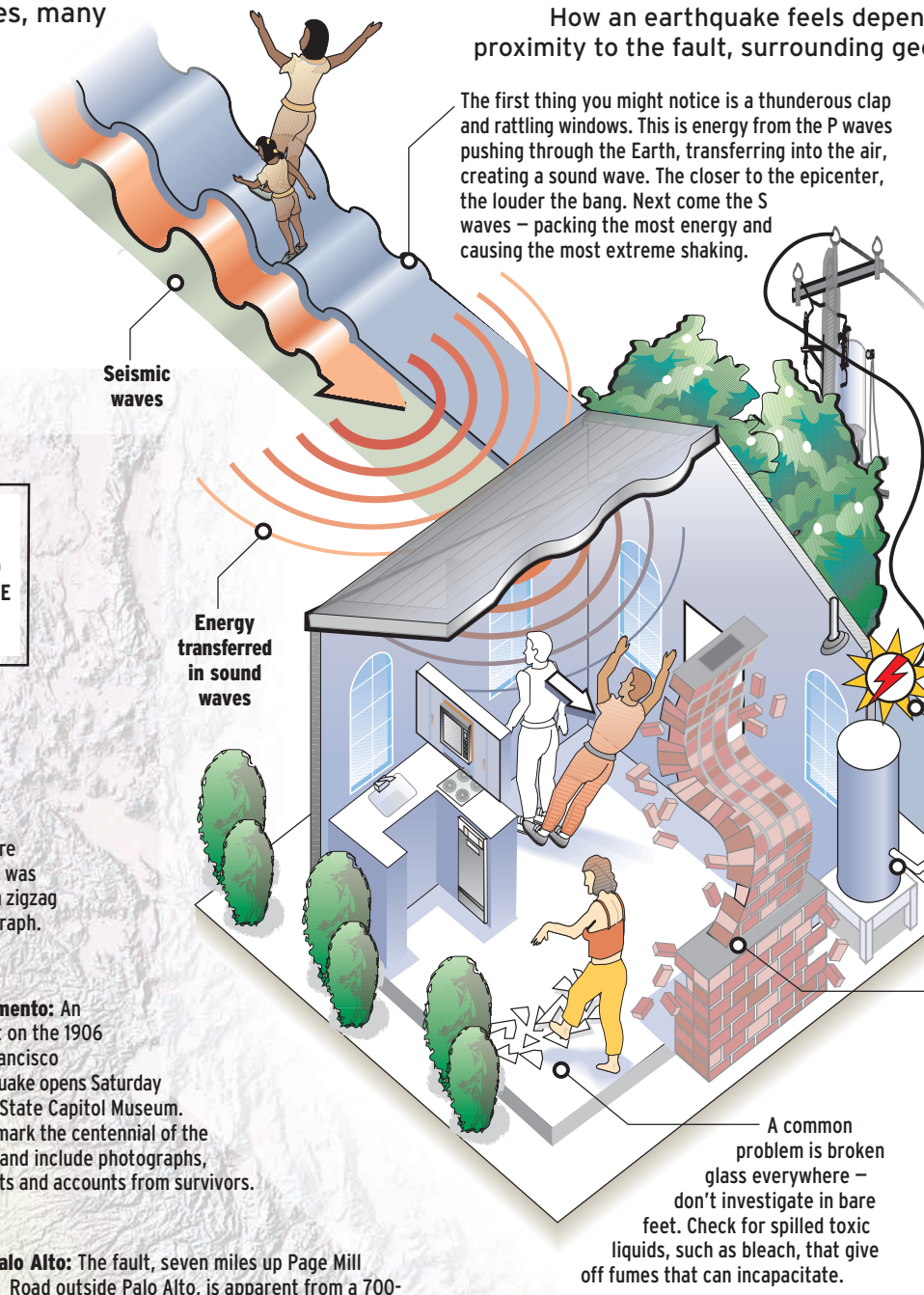


OUT OF CONTROL: Fires rage through San Francisco buildings after the devastating 7.8-magnitude earthquake on April 18, 1906.



Riding it out

How an earthquake feels depends on factors such as proximity to the fault, surrounding geology and size of the quake.



Estimate the miles you are from the quake's center by counting the seconds between the P and S waves, then multiply by 5.



A quake's duration is related to the length of fault affected. You can estimate the length of fault involved by multiplying the seconds a quake lasts by 1.5.

Post-quake

Safety tips for after the quake:

- Be careful of overhead electrical wires that might have loosened - they are deadly.
- Sniff around for gas leaks, starting with the water heater. If you smell gas, turn off the valve and call the Gas Co. Open windows and stay outside until house airs out.
- Unreinforced masonry - such as some chimneys - poses a danger because it might collapse. Stay away until structural integrity is confirmed.

Magnitudes of scale

Here are comparisons of three quakes and how much of a fault might be affected:

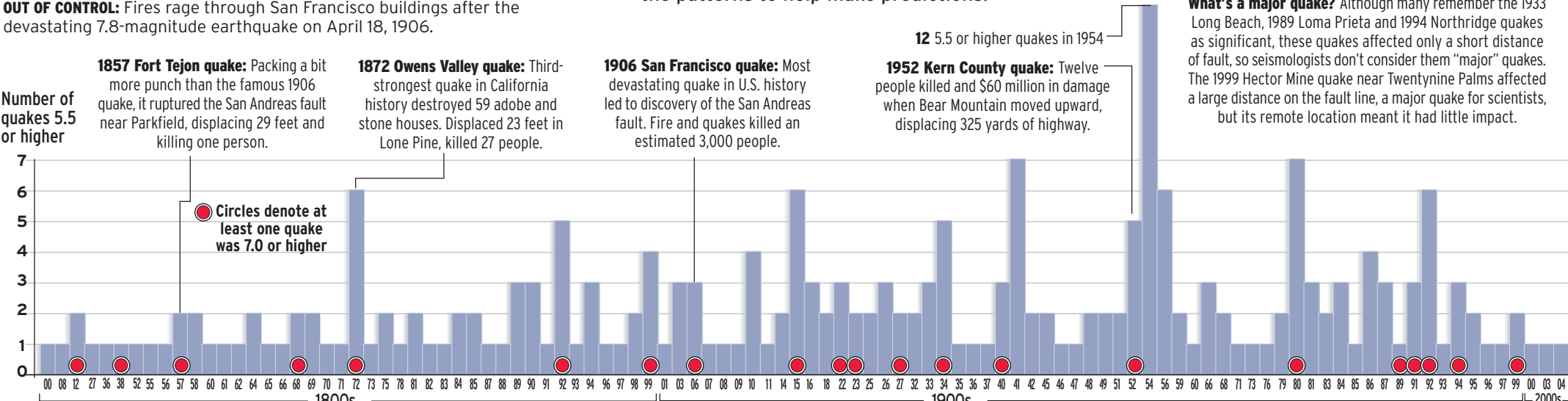
8.0 +300 miles of fault
+900 times the energy of a 6.0

7.0 +30 miles of fault
+30 times the energy of a 6.0

6.0 +5 miles of fault

Patterns to California's big quakes?

Predicting earthquakes is still difficult, but there is no doubt that earthquakes happen in clusters. Scientists have been trying to read the patterns to help make predictions.



What's a major quake? Although many remember the 1933 Long Beach, 1989 Loma Prieta and 1994 Northridge quakes as significant, these quakes affected only a short distance of fault, so seismologists don't consider them "major" quakes. The 1999 Hector Mine quake near Twentynine Palms affected a large distance on the fault line, a major quake for scientists, but its remote location meant it had little impact.

Sources: Susan Hough, U.S. Geological Society, author of "Finding Fault in California"; ESR; Michigan Tech; Orange County Red Cross; U.S. Department of the Interior
NOTE: Two U.S. Geological Society data tables were used to "plot" quakes. The summary magnitude from "California Earthquakes From 1769 To Present" was used to create the chart and to plot earthquake locations on the map. Since some of those magnitudes were measured on a different scale than the Richter scale, updated numbers from "Earthquakes in the United States, Magnitude 7.0 and Greater" were used to determine quakes with magnitudes 7.0 and higher.

Reporting by **Chantal Lamers**; graphic by **Scott M. Brown** / The Register