

Kids' KOrner

Midcontinent Cities Fear Return Of Earthquakes

BY KENNETH C. DANFORTH
National Geographic News Service
NEW MADRID, Mo. — A buried giant sleeps with its feet beneath Marked Tree, Ark., its head beneath Cairo, Ill., one clenched fist under Memphis, Tenn.

When sufficiently roused — and it may happen anytime — the giant will rip through the earth to smash buildings, throw highways aside, breach levees, and kill thousands.

Geologists know all this. They speak not of "if," but of "when." Far beneath the peaceful cotton and soybean fields, the unimaginable stresses of the New Madrid Seismic Zone will snap. The longer they build up, the worse the devastation will be.

Yet, communities that can expect disaster seem reluctant to prepare for it. After all, the famous New Madrid Fault has never been seen. It is a deep rift valley covered by thick Paleozoic limestone plus up to 4,000 feet of loose sand and clay. You can't fly over it and photograph it as you can the notorious San Andreas Fault in California.

Fatalistic Attitude

"We've attempted to have meetings," says city administrator Don Lloyd. "We couldn't generate any interest."

"IT'S OUR FAULT!" claims a T-shirt for sale at the New Madrid Museum.

"VISIT NEW MADRID (While It's Still There)," prompts another.

"We've never been too concerned about it," says Shirley Perry, president of the New Madrid Chamber of Commerce. "If it happens, it happens."

It happened before — three earthquakes one after the other in December 1811 and January and February 1812. Each quake alone was among the strongest in

history. The quick repetition of quakes was unusual and triply devastating. Geologists reckon they would have registered 8.6, 8.4, and 8.7 on the Richter scale.

People who lived through them told of geology gone berserk. The ground moved in oceanic waves, and it turned to slush beneath their feet. Sand spewed out in great fountains and pelted down upon them. Cracks opened so wide and deep that horses couldn't cross them, even after the shaking ceased. Trees splintered. The air seemed to roar in concert with the bursting of the earth. For a while the Mississippi River ran backward and swallowed huge hunks of terrain. Reelfoot Lake in Tennessee was created all at once. The town of New Madrid sank 12 feet, and the houses fell down.

The San Francisco earthquake of 1906, so infamous that other tremors are measured by it, was 8.3 on the Richter scale. But there are significant differences. San Francisco in 1906 was a densely populated city; the entire Mississippi Valley from Natchez to St. Louis held only 5,000 people in 1811-12. They were self-sufficient frontiersmen, living in log cabins and depending on their own skill as hunters and small farmers. Now more than 15 million people live in the hazardous zone.

Traveling Shock Waves

Another difference is in the earth's crust. If earthquakes of equal magnitude hit California and the Mississippi Valley today, the crustal rock of California would limit the area of destruction. In the soft alluvial soil of the Mississippi Valley, earthquakes travel much farther.

"Besides liquefaction of the soil in the New Madrid Zone, you get amplification of the seismic waves," says Arch Johnston,

director of the Tennessee Earthquake Information Center. "The waves can build up to twice their original strength."

The New Madrid quakes caused topographical changes over 50,000 square miles and shook more than a million square miles. "In terms of the 'felt area' — where the earthquake is perceptible to humans — the New Madrid quakes were the largest in American history. They were felt all the way to Canada and the U.S. East Coast," says Johnston.

New Madrid is not on a plate boundary, and midplate earthquakes of the kind that struck there have yet to be explained in terms of plate tectonics.

Johnston's agency, which monitors seismic activity in the region, is in Memphis. With a large number of high buildings downtown, on a bluff over the Mississippi, Memphis is expected to suffer more than any other sizable city in the seismic zone. A recent engineering study predicts that a daytime earthquake of 7.6 Richter would kill more than 2,500 people in Memphis and cause \$25 billion in property damage.

The study, part of the Central United States Earthquake Preparedness Project, tells what the next big quake in the New Madrid Seismic Zone can be expected to do to Memphis; Paducah, Ky.; Carbondale, Ill.; Evansville, Ind.; Poplar Bluff, Mo.; and Little Rock, Ark. In chilling, nonemotional detail, the thick report analyzes everything from the survivability of blood banks to the structural soundness of reservoirs and railroad bridges.

Witnesses Astounded

Eyewitness accounts of the 1811-12 quakes concentrated on the natural phenomena, what people saw happening to the earth and the

river, the subterranean canonading they heard, the sulfurous fumes they smelled. Accounts of urban chaos are missing.

In contrast, the drama of a modern recurrence would center upon the disruption of society's infrastructure. Unreinforced-masonry buildings would collapse. Gas mains would break. Highways would buckle. Levees would split. Food stocks would dwindle. Hospitals — those left standing — would be overwhelmed.

While New Madrid waits fatalistically behind the levee that looms above the south end of Main Street, one dedicated fireman and Explorer Scout leader in Blytheville, Ark., 50 miles to the south, is trying to stir people to prepare for the worst.

When he isn't on duty at the fire station, Bob Edwards spends much of his time speaking to civic clubs and other groups all up and down the threatened area. (He has not yet been asked to speak in New Madrid.)

"People don't want to face reality," says Edwards. "I've had two women call me and ask if I was associated with the devil. Because I was trying to scare people about earthquakes. People say, 'It's the Lord's will. If we're going to die, we're going to die.' Well, I'm a survivor."

Edwards emphasizes practical preparation: Have fire extinguishers and a good first aid kit in the house. Know how to turn off

gas and electricity. Strap the water heater to the wall so it won't fall over and spill what may be your only source of water for days. Keep fresh batteries in several flashlights and a portable radio — which may be your only way to get emergency messages. Store plenty of blankets and warm clothes in the car; it isn't as prone to earthquake destruction as your house is.

Delay in Outside Help

"The biggest problem," says Edwards, "is educating the public that they're going to have to take care of themselves. After a catastrophic earthquake, the federal people will not be able to get into this area from anywhere from three days to a week. Our own emergency services will be overrun. Obviously, big places like Memphis and St. Louis are going to get federal priority; they have more people. The highways into Blytheville are probably going to be destroyed, and probably the runways at Blytheville Air Force Base. We're only 10 miles from the Mississippi, and if the levee breaks

... "The earthquake itself is not the real culprit as far as directly injuring people. It's the shattering glass, flying bricks, gas explosions, live wires, burning rubble, hazardous-materials spills, the injuries brought on by panic. The casualty rate will soar if the quake hits during school hours. There is no way we'll be able to handle all the wounded."

4-H Production Club News

Members of the 4-H Production Club reported on their foals and their progress. The group will show its foals during the 10 a.m. District Show Aug. 14.

The next meeting will be held at the home of Rose Fellenbaum Aug. 12 at 6:30 p.m. Members are reminded to bring their project animals.

COLOR THIS!

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|-----------|--------------|
| 1. BLACK | 6. PEACH |
| 2. RED | 7. GREEN |
| 3. YELLOW | 8. LT. BROWN |
| 4. GREY | 9. LT. BLUE |
| 5. BROWN | 10. LT. GREY |

MOUNTAIN MEN WERE BEAVER TRAPPERS FROM THE ROCKY MOUNTAINS, AND THE FIRST PEOPLE TO COME OVERLAND TO CALIFORNIA FROM THE UNITED STATES. THESE MEN LED RUGGED LIVES. THEY TRAPPED AND SHOT THEIR WAY ACROSS THE TRAILS. THEY DID MUCH TRADING WITH FRIENDLY INDIANS.

