

# Charles Richter and His Scale

A low rumbling sound can be heard. Everything shakes. Buildings crack. Bricks crash to the street. Things fall from tables and shelves. Bridges sway. Pipes break. Electric lines fall. Fires break out. Is this a scene from a new horror movie? No, this is what can happen during an earthquake.

More than a thousand earthquakes happen every day. Some earthquakes cause a great deal of damage. Others cannot even be felt. Seismologists study such movements of the earth. Thanks to a man named Charles Richter, they are able to tell just how strong an earthquake is.

Charles Richter was a well-known seismologist. He spent many years studying the earth. In 1935, he and Beno Gutenberg developed a new scale. It measured the strength of earthquakes. This scale was called a seismograph. Seismographs have been used for over forty years. This measuring system is called the Richter scale.

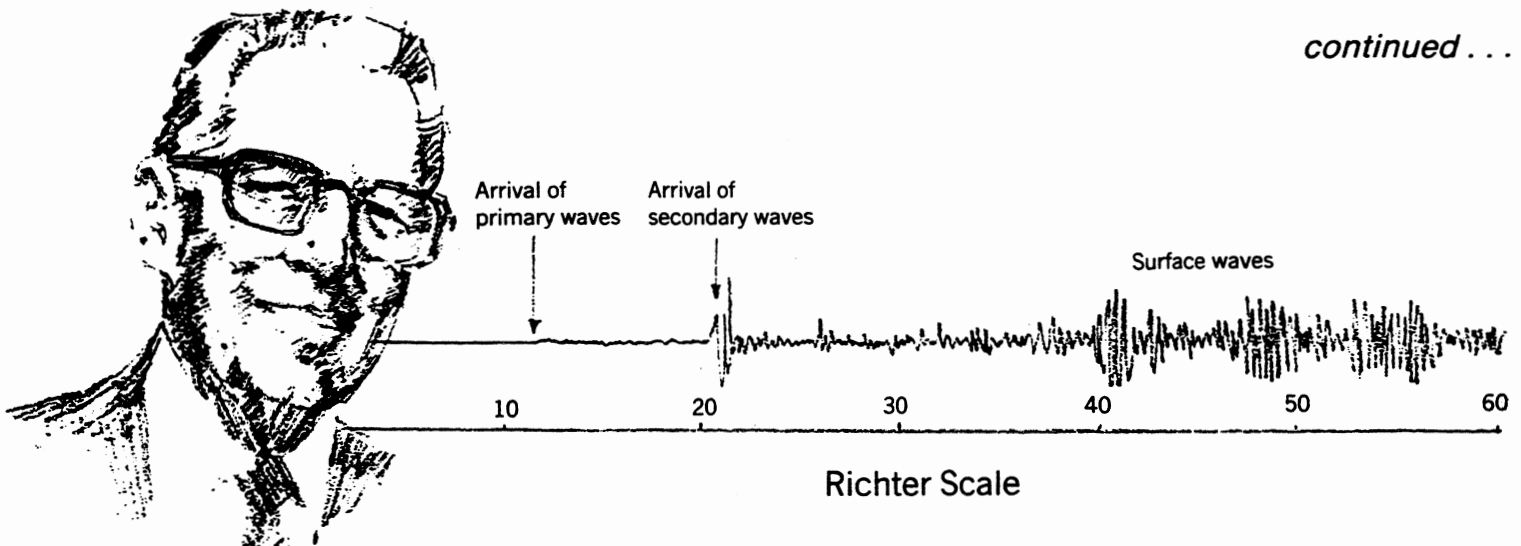
Charles was born near Hamilton, Ohio. There he lived on a farm for nine years. Then his family moved to California. In high school, he was in the natural history

club. He enjoyed the club camping trips. He would relax in the woods for days or even weeks. At that time, there were no roads into the forest. Charles walked a lot. He learned about the earth as he walked. This learning helped him later in life.

In college, Charles studied physics. After college, he took a job at the California Institute of Technology. He worked in geology and geography. Studying earthquakes was not part of Charles' job. But he wanted to know where they came from. He also wanted to know how big they were. He decided to find out. Gutenberg helped him.

Richter and Gutenberg worked hard. They found out all they could about earthquakes. They learned that California had over two hundred earthquakes a year. Charles felt that this number would scare people. He wanted to show that some earthquakes are stronger than others. His scale helped him to do this. An earthquake that measures 1 on his scale is a small ripple. Most people would not even feel such an earthquake. An earthquake that measures  $4\frac{1}{2}$  might cause a small amount of damage. One

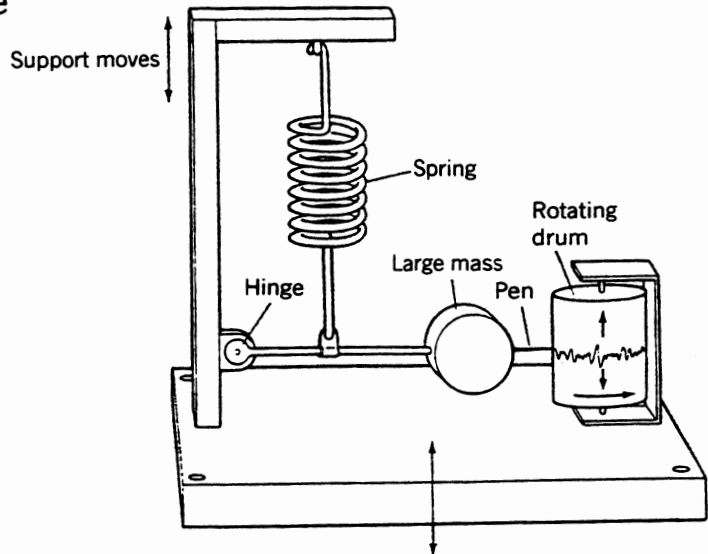
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that measures 8 or 9 is dangerous. The largest earthquake ever reported measured  $8\frac{1}{2}$  on Richter's scale.

Charles pointed out that few people are hurt or killed by earthquakes. He said that falling buildings and fires caused by the earthquakes hurt and kill people. Charles asked that decorations be removed from building tops. He said these could fall and hurt people during earthquakes. Some say that this saved many lives in Los Angeles' 1971 earthquake.

Charles kept studying and teaching about earthquakes. He also kept hiking and camping. The subject "earth" kept Charles interested for the rest of his life.



### Main Idea

1. This story is mainly about
  - a. a California earthquake.
  - b. a man who studied earthquakes.
  - c. two friends who liked to camp.

### Significant Details

2. Charles Richter grew up on
  - a. a farm.
  - b. a mountain.
  - c. an island.
3. Charles developed a scale that would
  - a. weigh fish at the market.
  - b. record the height of mountains.
  - c. measure the strength of earthquakes.

### Context Clues

4. A *ripple* is something like a
  - a. loud noise.
  - b. small wave.
  - c. large farm.
5. Charles *relaxed* in the woods.
  - a. rested
  - b. fished
  - c. looked

### Drawing Conclusions

6. In order to invent a scale, Charles probably
  - a. worked day and night for ten years.
  - b. had to know a lot about science and math.
  - c. knew how to find his way in the dark.

### Following Through

7. Look up "Richter Scale" in a research book. Write about how you think it works. Do you think it is a useful tool? Explain. \_\_\_\_\_

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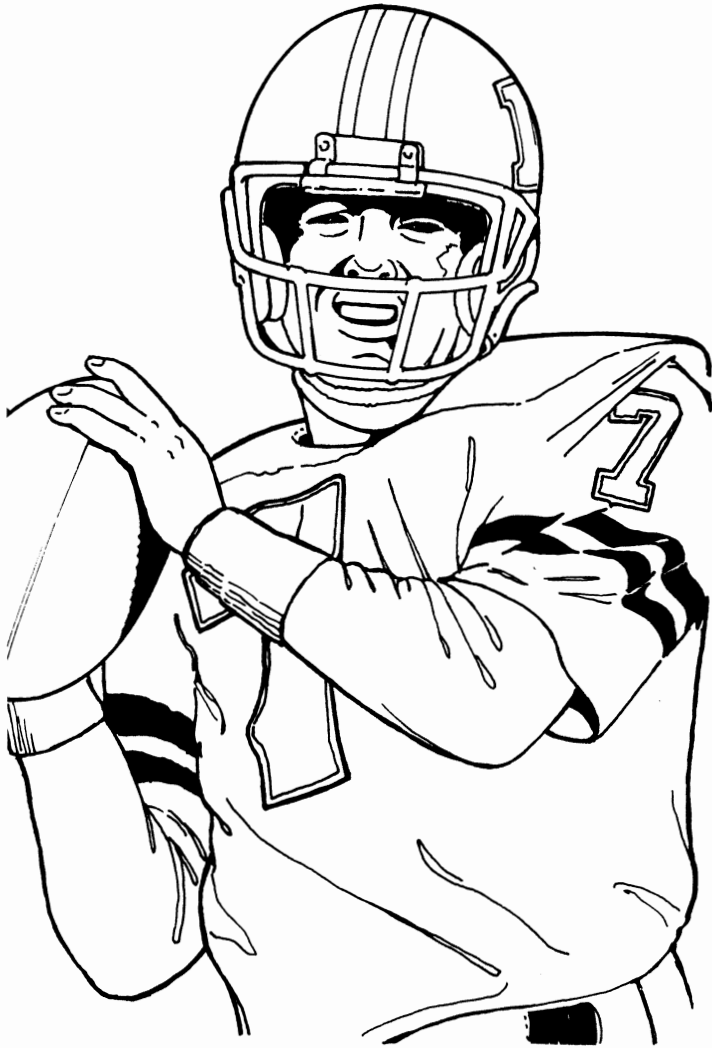
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8. Almost all of the world's major earthquakes occur in two great belts. They are known as the circum-Pacific belt and the Alpide belt. Find out where these two belts are located. What areas are affected?

## John Elway



John Elway is called the “Comeback Kid” of football. Elway was the quarterback for the Denver Broncos. If his team was losing, John “came back” into the game with speed and strength. This usually helped the team win the game.

But John Elway’s comebacks aren’t just in football. Elway has been making comebacks all his life.

When John was little, he liked many sports. One day, John played whiffle ball with kids in the neighborhood. A neighbor’s dog was asleep on the field. John didn’t see the dog and stepped right on him. The sleeping dog awoke and attacked John. He had to get stitches for his cuts. But soon he came back to play sports again.

Throughout his school years, John enjoyed many sports. He played baseball, swam, and ran track. In his first team football game, John scored four touchdowns. John’s parents helped him in many ways. They taught him to always be a good sport. They taught him to listen to his coaches. And they taught him to do his best. High school years were busy ones for John. He had lots of practices, but he always made As and Bs in his classes. Soon John was ready to play college football.

John wanted to do well for his new college team at Stanford University. But during his first game, John ran out onto the field, tripped, and fell. This wasn’t a very good way to start his college years. But John made a comeback and played well for Stanford.

While he was at Stanford, John met a girl named Janet. She was a star on the Stanford swimming team. On one of their first dates, John tossed a football to Janet and broke her finger! This time Janet made the comeback. She and John were married.

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After college, John was chosen to play football for the Denver Broncos. They made him the highest paid NFL (National Football League) player before he even played his first game for them. His start with the team wasn't easy. But over the seasons, John made his comebacks and took his team to the Super Bowl. This is the game for the best teams in the league. It was John's dream to win the Super Bowl. The Denver Broncos were good enough to go to the Super Bowl for three years. But the Broncos didn't win the big games.

Finally, in January of 1999, John Elway made his biggest comeback. He helped his team win the Super Bowl XXXII. John's dream had come true.



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### Main Idea

1. John Elway
  - a. plays football.
  - b. is a swimmer.
  - c. is in college.
2. After a bad start, John often
  - a. gives up.
  - b. switches sports or teams.
  - c. comes back to win.

### Significant Details

3. John Elway was a quarterback for
  - a. Stanford University.
  - b. Atlanta Braves.
  - c. Denver Broncos.

4. John's parents
  - a. encouraged him.
  - b. wanted him to play baseball.
  - c. helped him with track.
5. John's dream was to
  - a. be a quarterback.
  - b. win the gold medal.
  - c. win the Super Bowl.

### Drawing Conclusions

6. When things get hard for John, he
  - a. gets lucky.
  - b. works harder.
  - c. slows down.