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Happy Birthday to Inge Lehmann, the Woman Who Discovered Earth's Inner Core

**Pioneering geologist used earthquakes to
unravel the mystery of the Earth's core**



(<http://www.kb.dk/images/billed/2013/apr/tilsalg/object11164/da/>)

By [Danny Lewis](#)

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Today, millions of people across the world will open their web browsers and see an animation of the Earth split in two, it's inner core floating in space just above Google's search box. It's thanks to a pioneering scientist named Inge Lehmann — who would have turned 127 today — that scientists know that inner core exists.



via Google

[According to the American Museum of Natural History](#), Lehmann made her discovery while studying a type of seismic shock wave called Primary waves, or P-waves. At the time, scientists believed that the Earth's center was made a liquid core surrounded by a solid mantle that the crust sat on top of. This theory explained why P-waves from large earthquakes weren't detected on the opposite side of the planet, as the molten core would deflect the seismic waves.

However, after a 1929 earthquake in New Zealand, Lehmann discovered that a few faint P-waves had been recorded in places where they shouldn't have been. This could only happen, she theorized, if there was something solid at the center of the Earth.

By then, the seismograph had been around for about 40 years and was one of the best tools geologists had for peeking under the Earth's crust. However, the instruments were crude compared to what researchers use these days. At the time Lehmann was conducting her research, geophysicists collected data from seismic monitoring stations set up around the world in order to record earthquake vibrations as they pinged around the center of the planet. Without computers to help analyze the data, Lehmann kept track of it all on slips of cardboard she stored in old oatmeal boxes.

Her idea was revolutionary. When Lehmann published her findings in 1936, her solid core model was quickly adopted by the scientific community. Lehmann's theory was finally proven right in 1970, when new,

more sensitive seismographs picked up seismic waves bouncing off the Earth's solid core.

Lehmann was also an advocate for women in the sciences at a time when they struggled to be taken seriously in a male-dominated field. While she was educated at Denmark's first co-ed school, her nephew once quoted her as saying, "You should know how many incompetent men I had to compete with—in vain."

In spite of this, Lehmann became one of the world's foremost seismological experts. She was awarded the William Bowie medal by the American Geophysical Union in 1971 and was celebrated as "the master of a black art for which no amount of computerizing is likely to be a complete substitute." Lehmann died in 1993 at the age of 104.

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About Danny Lewis

Danny Lewis is a multimedia journalist working in print, radio, and illustration. He focuses on stories with a health/science bent and has reported some of his favorite pieces from the prow of a canoe. Danny is based in Brooklyn, NY.

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