

# Marie Tharp

(1920 – 2006)

## *Her Maps Changed Geology Forever*

Born in 1920, Marie Tharp grew up in an era when women were not encouraged to make a career in science. When the Second World War took young men away from academic study, Tharp gained a place in the Earth Sciences Department at the University of Michigan. Here she was able to pursue an accelerated master's degree in geology, and later, a degree in mathematics from the University of Tulsa. During her degree she was encouraged to develop drafting skills to increase her chances of finding work after the war ended. These skills proved critical to her later work.



Main image: Tharp and Heezen [Fair Use © Marie Tharp Maps].  
Background: Portion of map showing Mid-Atlantic Rift Valley [National Oceanic and Atmospheric Administration, Public Domain].

In 1948, Tharp was employed at the Lamont Geological Laboratory at Columbia University where she worked with geologist Bruce Heezen to conduct the first systematic attempt to map the entire ocean floor. It was painstaking work – Tharp had to analyse vast numbers of sonar soundings and plot out the measurements by hand. Her greatest discovery occurred in 1953 when she found a huge valley in the middle of what is now known as the Mid-Atlantic Ridge, the Earth's largest physical feature. This valley provided evidence that the sea floor was actually spreading, supporting the controversial idea first proposed in 1912 by the brilliant meteorologist Alfred Wegener. Wegener had noticed that the coastlines of South America and Africa seemed to fit together like a jigsaw, and also that similar fossils were found on different continents. He suggested that the earth's crust consisted of plates that moved - the concepts of plate tectonics and continental drift. His theory had been largely dismissed due to lack of convincing evidence.

When Tharp revealed her discovery of the valley and the Mid-Atlantic Ridge to Heezen he initially dismissed it as "girl talk". It took a year before he began to believe her, despite the body of evidence she had compiled. Heezen finally announced the findings in 1956 and published them in 1959. Tharp's name does not appear on any of the major papers on the topic between 1959 and 1963. She was finally recognised much later in her life when in 1997, she was named as one of the greatest cartographers of the 20th century by the Library of Congress as part of the 100th anniversary of its Geography and Map Division. Perhaps too little, and too late.

