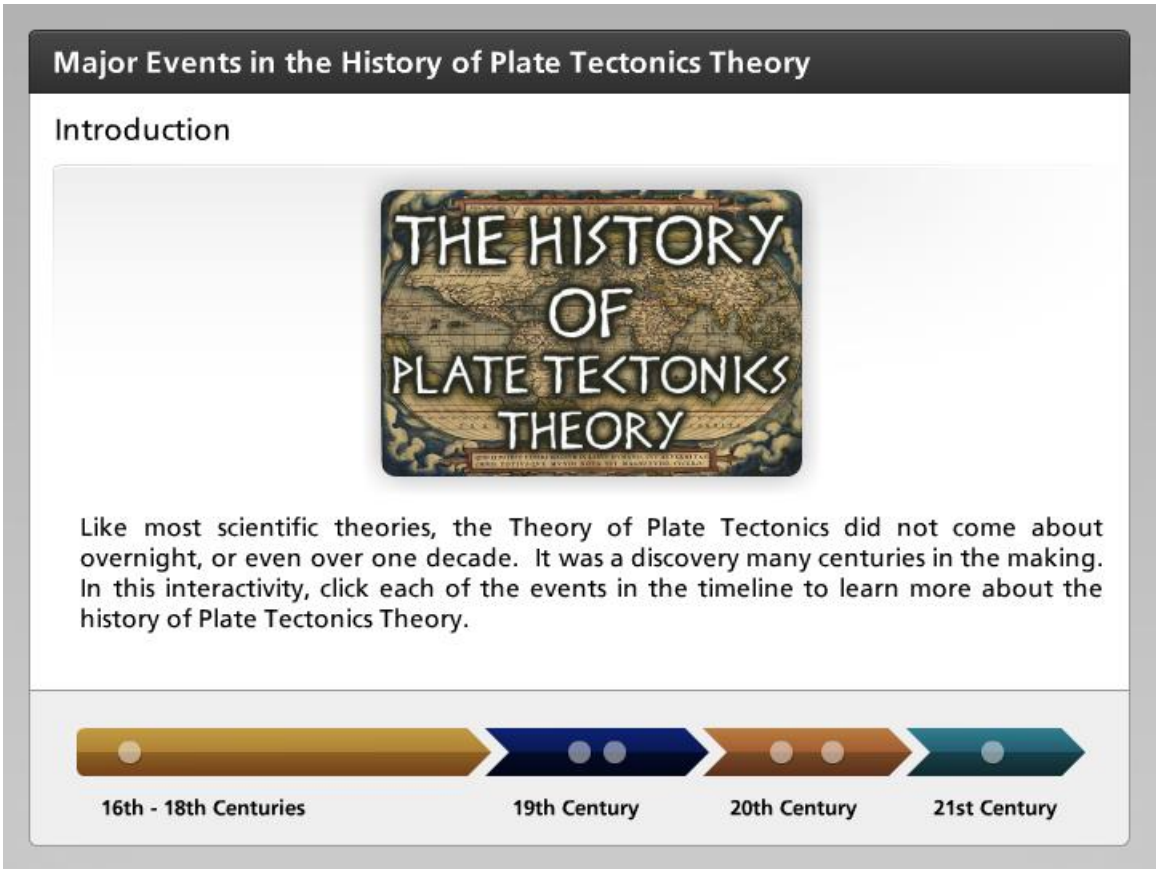
Module 7: Plate Tectonics and Earth's Structure

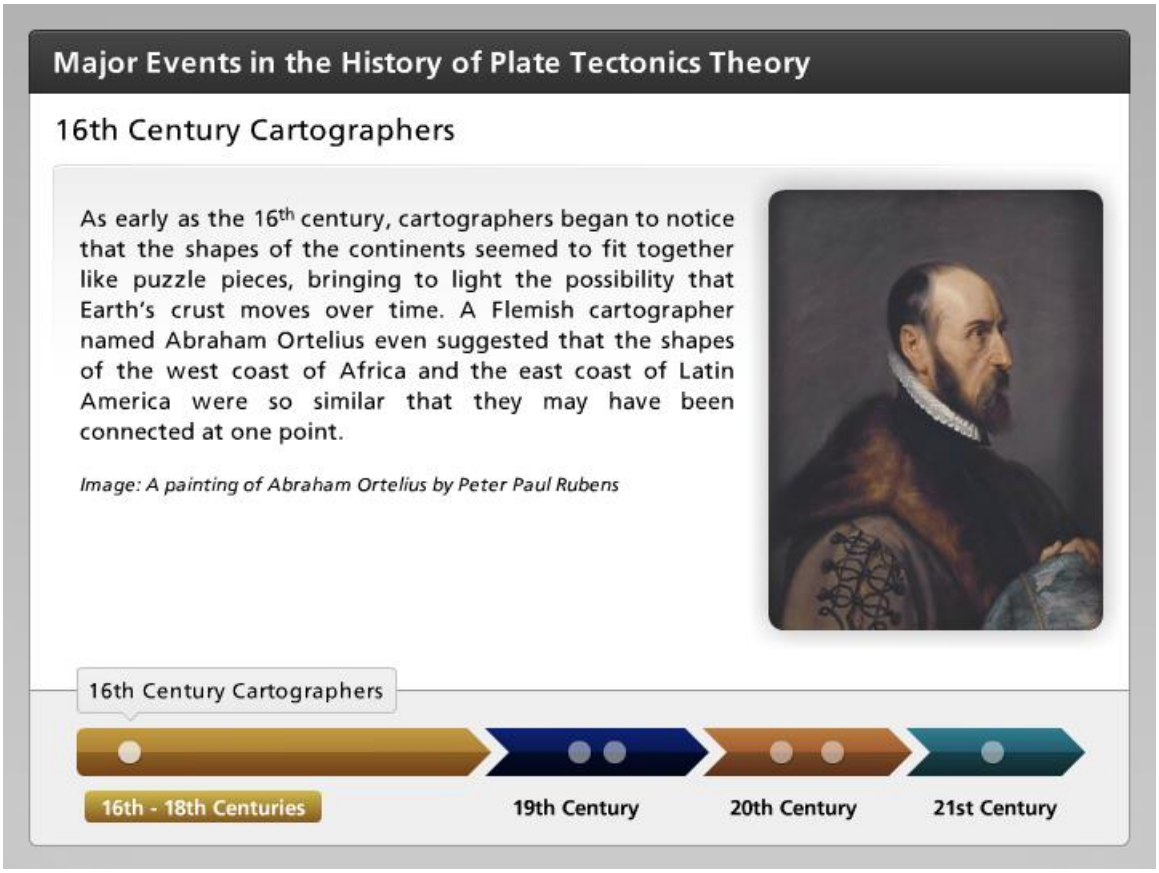
Topic 2 Content: Major Events in the History of Plate Tectonics Theory Notes

Introduction



Like most scientific theories, the Theory of Plate Tectonics did not come about overnight, or even over one decade. It was a discovery many centuries in the making. In this interactivity, click each of the events in the timeline to learn more about the history of Plate Tectonics Theory.

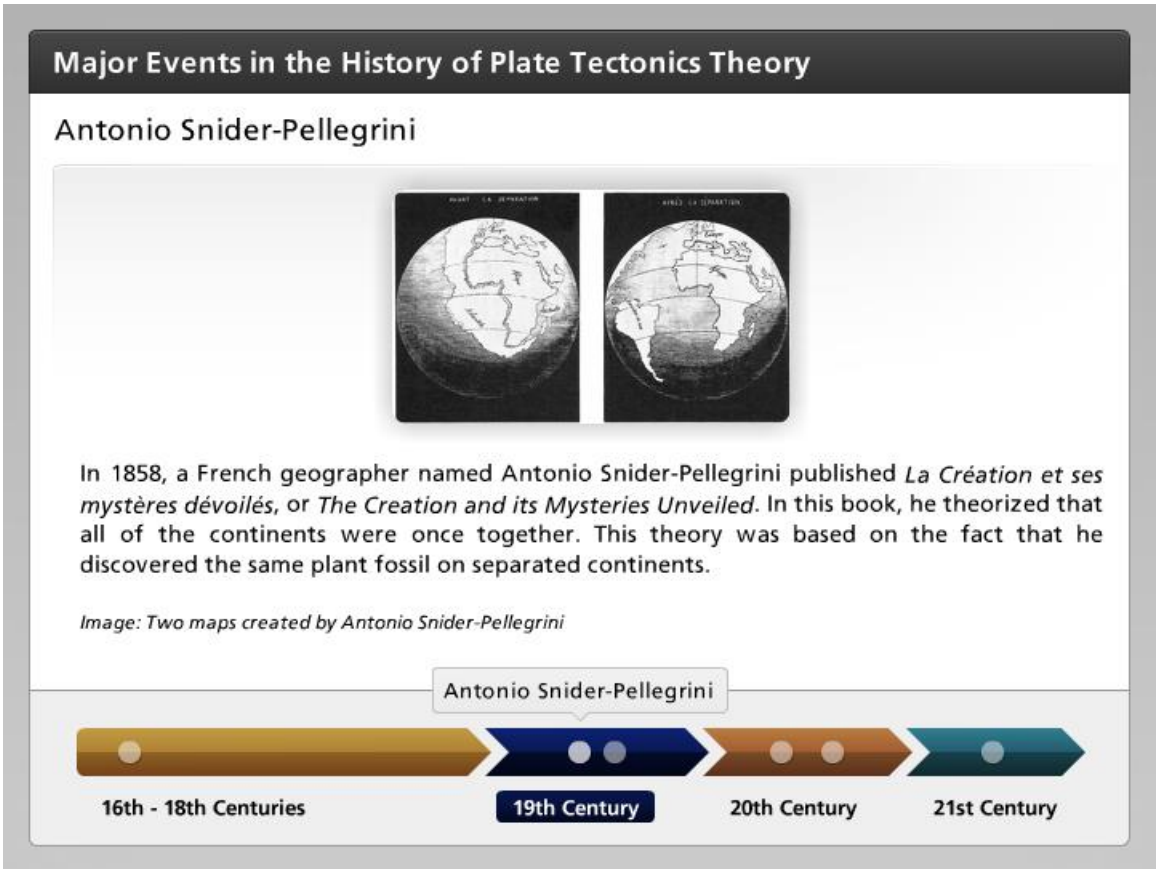
16th Century Cartographers



As early as the 16th century, cartographers began to notice that the shapes of the continents seemed to fit together like puzzle pieces, bringing to light the possibility that Earth's crust moves over time. A Flemish cartographer named Abraham Ortelius even suggested that the shapes of the west coast of Africa and the east coast of Latin America were so similar that they may have been connected at one point.

Image: A painting of Abraham Ortelius by Peter Paul Rubens

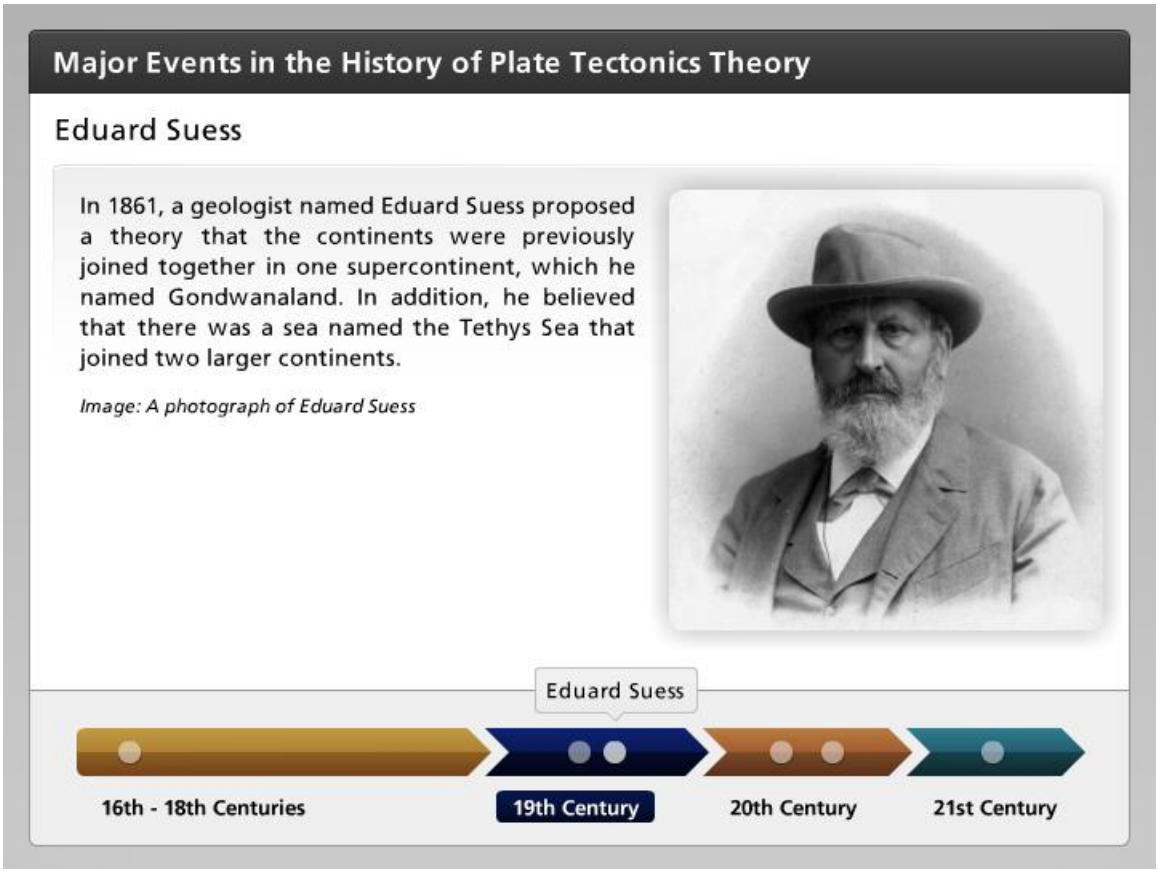
Antonio Snider-Pellegrini



In 1858, a French geographer named Antonio Snider-Pellegrini published *La Création et ses mystères dévoilés*, or *The Creation and its Mysteries Unveiled*. In this book, he theorized that all of the continents were once together. This theory was based on the fact that he discovered the same plant fossil on separated continents.

Image: Two maps created by Antonio Snider-Pellegrini

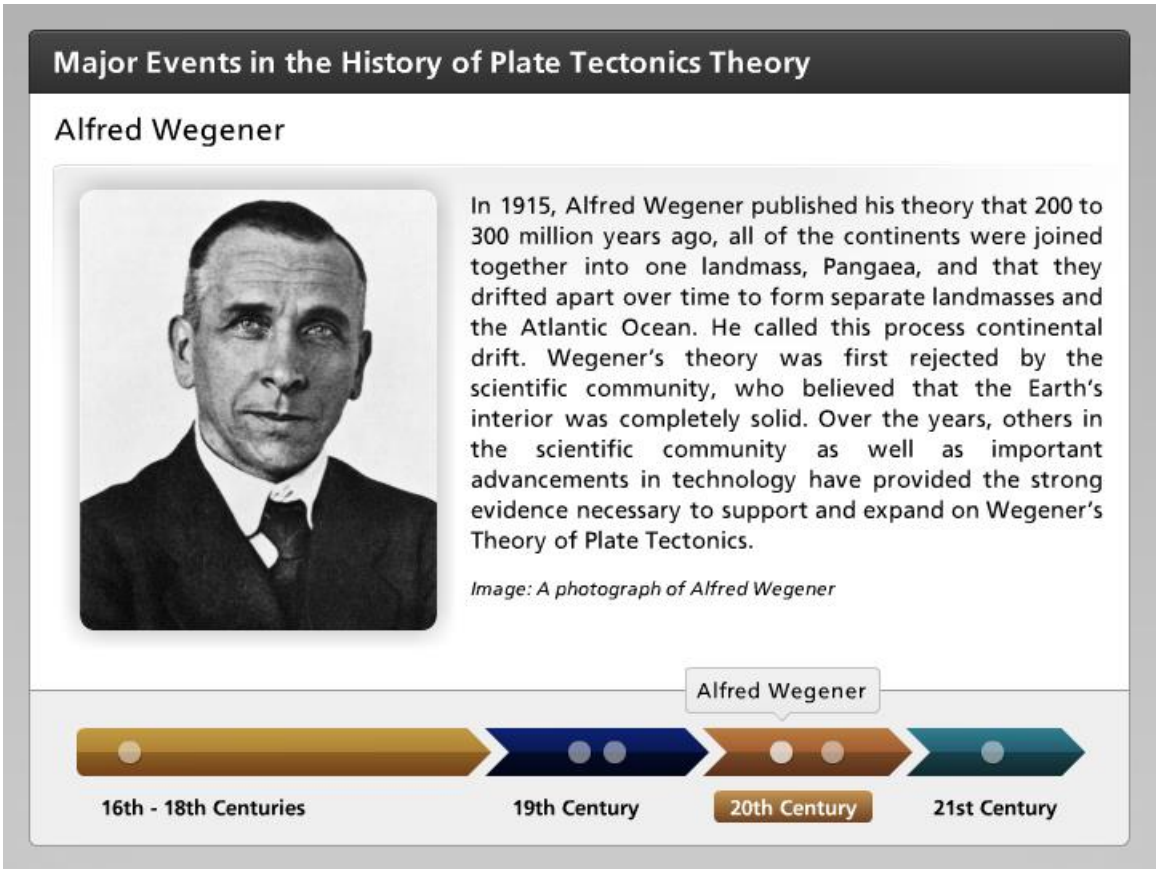
Eduard Suess



In 1861, a geologist named Eduard Suess proposed a theory that the continents were previously joined together in one supercontinent, which he named Gondwanaland. In addition, he believed that there was a sea named the Tethys Sea that joined two larger continents.

Image: A photograph of Eduard Suess

Alfred Wegener



In 1915, Alfred Wegener published his theory that 200 to 300 million years ago, all of the continents were joined together into one landmass, Pangaea, and that they drifted apart over time to form separate landmasses and the Atlantic Ocean. He called this process continental drift. Wegener's theory was first rejected by the scientific community, who believed that the Earth's interior was completely solid. Over the years, others in the scientific community as well as important advancements in technology have provided the strong evidence necessary to support and expand on Wegener's Theory of Plate Tectonics.

Image: A photograph of Alfred Wegener

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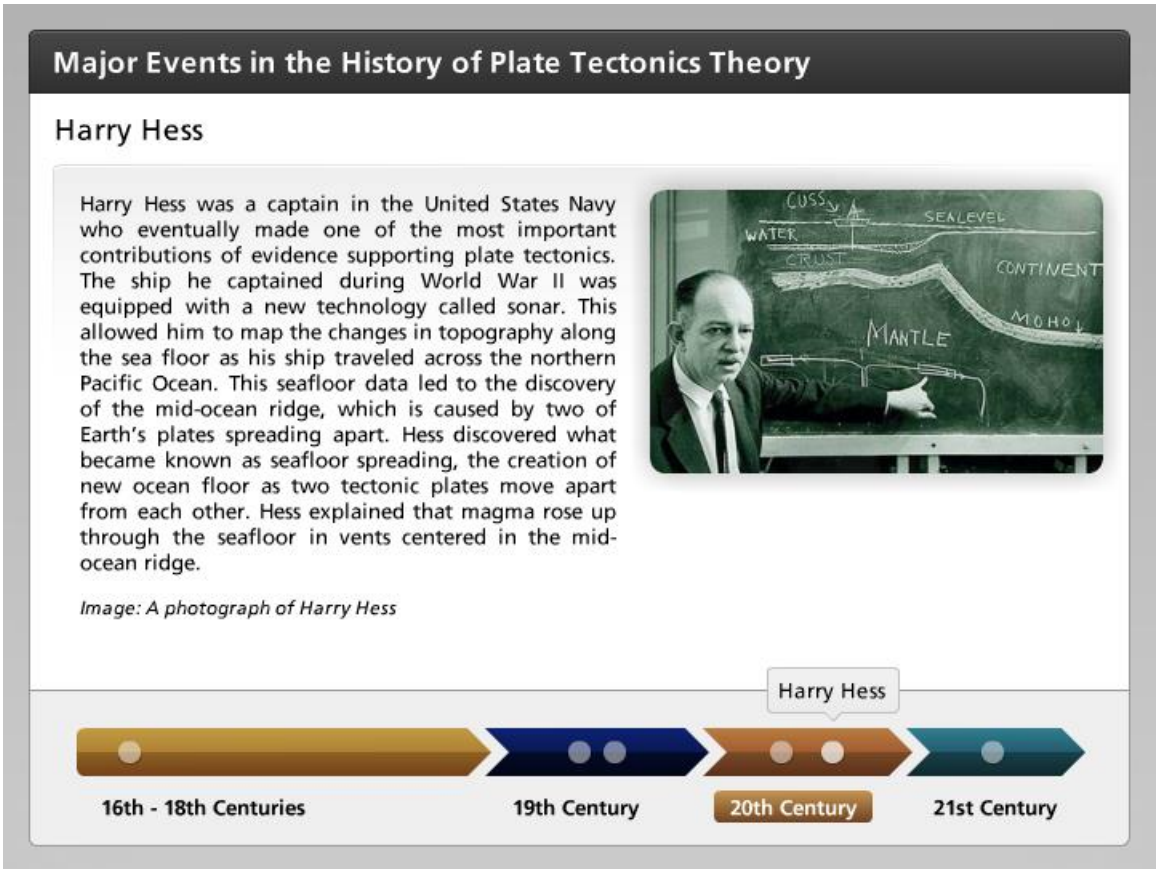
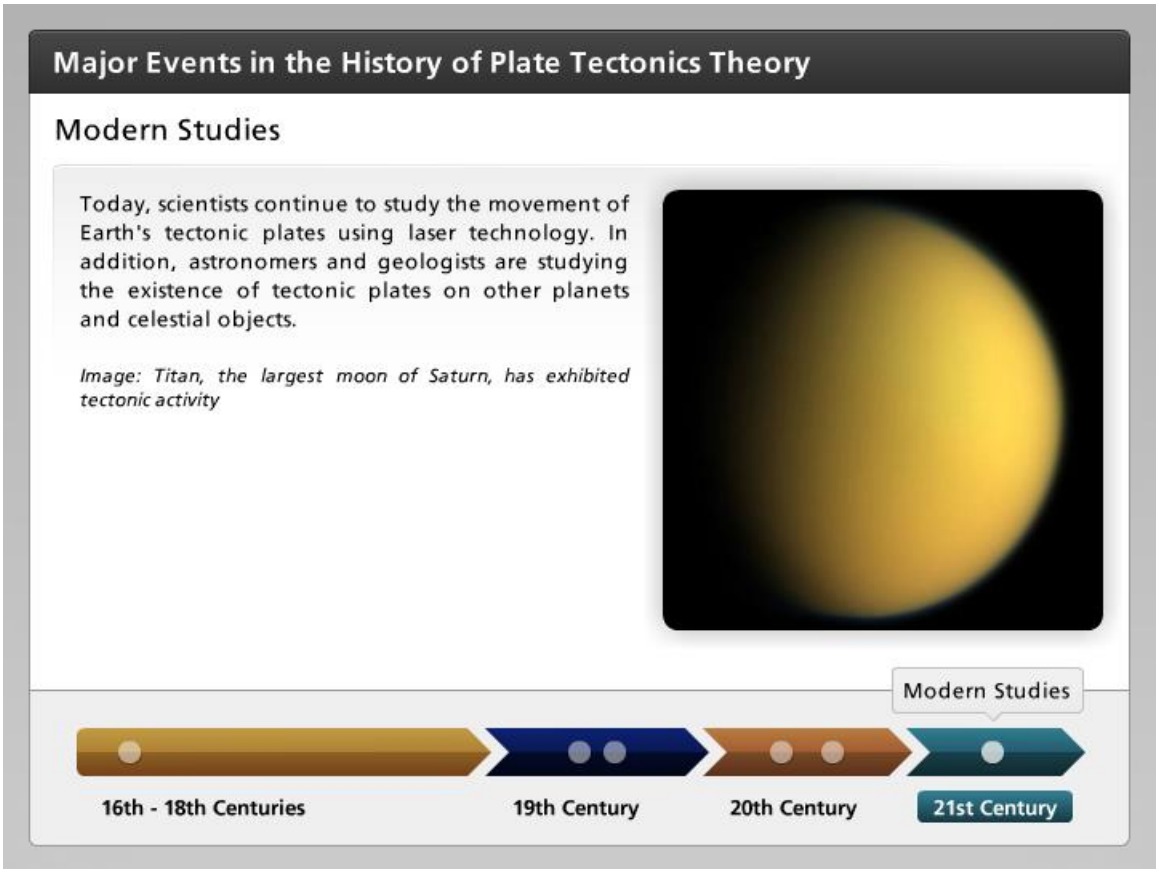
Harry Hess



Harry Hess was a captain in the United States Navy who eventually made one of the most important contributions of evidence supporting plate tectonics. The ship he captained during World War II was equipped with a new technology called sonar. This allowed him to map the changes in topography along the sea floor as his ship traveled across the northern Pacific Ocean. This seafloor data led to the discovery of the mid-ocean ridge, which is caused by two of Earth's plates spreading apart. Hess discovered what became known as seafloor spreading, the creation of new ocean floor as two tectonic plates move apart from each other. Hess explained that magma rose up through the seafloor in vents centered in the mid-ocean ridge.

Image: A photograph of Harry Hess

Modern Studies



Today, scientists continue to study the movement of Earth's tectonic plates using laser technology. In addition, astronomers and geologists are studying the existence of tectonic plates on other planets and celestial objects.

Image: Titan, the largest moon of Saturn, has exhibited tectonic activity