Fitting the Continents Together

In science, new ideas are accepted only when there is evidence to support them.

Alfred Wegener was trained as an astronomer and worked as a meteorologist. A meteorologist is a scientist who studies weather. But what made Wegener famous were his ideas about geology. Geology is the study of Earth’s processes, structure, composition, and history. In the early 1900s, geologists thought that the continents had always been where they are today. Wegener studied reports of similar fossils and rocks found on continents separated by the ocean. He hypothesized that today’s continents were at one time joined as one giant continent. He explained that slowly, the giant continent had broken apart. Over 200 million years, the pieces drifted to where they are found today. Wegener’s idea—called continental drift—was revolutionary. And it was not very popular with other scientists.

WHAT WOULD YOU DO? Imagine you are at a scientific meeting of geologists. Someone stands up and says, “My name is Alfred Wegener and I am a meteorologist. Let me tell you my great new idea about Earth’s history. It’s based on evidence from fossils and rocks found on different continents.”

Would you be willing to listen to Wegener? Explain your answer.
Geologists were shocked when Alfred Wegener presented his idea of drifting continents.

**A Revolutionary Idea**

"Doesn't the east coast of South America fit exactly against the west coast of Africa, as if they had once been joined?" wrote Wegener to his future wife in December 1910. "This is an idea I'll have to pursue."

...Just a year later, on January 6, 1912, Wegener startled a meeting of the Geological Association in Frankfurt, (Germany) with his radical theory...a grand vision of drifting continents and widening seas to explain the evolution of Earth's geography.

"Utter, damned rot!" said the president of the prestigious American Philosophical Society.

"If we are to believe this theory, we must forget everything we have learned in the last 70 years and start all over again," said another American scientist.

Anyone who "valued his reputation for scientific sanity" would never dare support such a theory, said a British geologist.

Thus did most in the scientific community ridicule the concept that would revolutionize the earth sciences and revile the man who dared to propose it, German meteorological pioneer and polar explorer Alfred Wegener.

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**radical:** very different from the usual  
**theory:** an idea that explains how many scientific observations are related  
**geography:** the study of Earth's features, climates, and conditions that affect people  
**prestigious:** well-respected  
**ridicule:** make fun of  
**revile:** verbally attack

COMPARING THEORIES Wegener spent most of 1911 studying the work of geologists. He read about identical fossils found in South America and Africa. The fossils showed that the same kinds of animals lived on the two continents at the same time. Most geologists thought it was impossible for continents to move. Even Wegener could not explain how it happened. Some geologists hypothesized that long land bridges must have connected the two continents. They believed that over time, these bridges had sunk into the ocean so they could no longer be seen.

▪ How did Wegener explain why the fossils matched?

Wegener researched the work of other geologists. He read that rock formations on the east coast of South America and the west coast of Africa matched.

▪ How did Wegener’s theory explain these matching rock formations?

▪ How might the land bridge hypothesis explain the same fossils and rock formations?

▪ Why do you think the scientists at the Geological Association meeting rejected Wegener’s theory of continental drift?
AN ADVENTUROUS SCIENTIST As a boy, Wegener dreamed of exploring the Arctic. He was excited by the challenge of exploring and making new discoveries. As an adult scientist he was also adventurous. He tested a new weather instrument in a long hot-air balloon flight. He survived the longest crossing of an ice sheet ever made. (An ice sheet is a huge, thick glacier covering a large land area.) In fact, Wegener died on the Arctic ice after trying to save other men.

- **Someone who is adventurous is willing to take chances. What kinds of chances did Wegener take as an explorer?**

- **What kinds of chances did Wegener take as a thinker?**

Wegener did not give up on his theory of continental drift. He continued to work on it for the rest of his life. It was another 50 years before other scientists accepted the idea that continents could be moving.

IT'S FUNNY—BUT IS IT SCIENCE?
- **This cartoon is funny because it doesn’t represent continental drift accurately. Explain why the cartoon and caption are not accurate.**

Continental drift would eventually force Og to raise his rates.