

When relativity it was
not accepted
immediately



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When Albert Einstein proposed his Theory of Relativity it was not accepted immediately but eventually over time and after some debate it became a replacement for the idea of physical mechanics formulated by Isaac Newton to explain the motion of large bodies in the presence of gravity. Relativity did not totally discredit Newtonian Mechanics but it did raise new questions and could prove certain things that Newton could not.

There were questions, critics, and proponents of the new idea but it came in time and after much debate. Shifting from one theory to another after the original idea has existed and been accepted for so long never sits well with scientists. This same shift of ideas is true for Alfred Wegener and his theory of Pangaea and plate tectonics. Wegeners theories gave a plausible explanation for the presence of the same species of fossils found on two different continents.

His theory refuted the current theory of huge land bridges that connected the continents. This shift from one idea to another, according to Thomas Kuhn, is considered a paradigm shift. Kuhn said, a paradigm is term that relates closely to Normal Science. Normal science being research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice (Kuhn p.

159). In the sense of scientific discoveries a paradigm is considered an example of a model formed by the theories presented by a scientist.

Wegeners theory of plate tectonics and continental drift is an example of a Kuhn paradigm shift because it took an original idea that was believed to be

true and expanded on it to form a new theory and model that is still followed today. The current theory on plate tectonics is the theory that Earth's outer layer is made up of plates, which have moved throughout Earth's history. The theory explains the how and why behind mountains, volcanoes, and earthquakes, as well as how, long ago, similar animals could have lived at the same time on what are now widely separated continents. Perhaps initiated by heat building up underneath the vast continent, Pangaea began to rift, or split apart, around 200 million years ago. Oceans filled the areas between these new sub-continents. The landmasses continued to move apart, riding on separate plates, until they reached the positions they currently occupy.

One theory is that convection within the Earth's mantle pushes the plates causing them to rift moving the continents and hitting other plates causing mountains to form and earthquakes to occur. Exploration of the ocean floor was the proof Wegener needed to prove his theory about plate tectonics and how it affected the movement of the continents. The original theory for the presence of organisms on two separate continents was huge land bridges that connected one continent to the other. These bridges disappeared after huge amounts of ice melted and filled the ocean with more water. The land bridges sunk under the water and the higher elevated areas are what can be seen today.

Wegener concluded that the land bridges were not the cause for organisms to be present on two continents separated by an ocean. He believed that the Earth and all its continents were one large land mass at one time and he called it Pangaea. He concluded that the continents were all connected and <https://assignbuster.com/when-relativity-it-was-not-accepted-immediately/>

that explained how fossilized organisms are present in Africa and South America.

He explained the position of the continents current location from Pangaea with his theory of continental drift. Continental drift theory says the continents moved and the moving plates under the Earth folding up and causing cracks in the Earths crust formed mountains. Wegener knew his ideas were more believable than land bridges but he could not find proof to make his theory believable. Wegener displayed his content for the scientists who did not want to accept his new theory in his book, *The Origins of Continents and Oceans* (4th edition) when he said:” Scientists still do not appear to understand sufficiently that all earth sciences must contribute evidence toward unveiling the state of our planet in earlier times, and that the truth of the matter can only