

Use-fulness	Helped in the evolution of convection current theory and seafloor spreading theory	Helped us understand various geographical features.
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How plate tectonics is an improvement over continental drift theory:

- Plate tectonic explains the mechanism of the motion of the tectonic plates while continental drift theory left this question completely unanswered.
 - Tectonic plates have been constantly moving over the globe throughout the history of the earth. It is not the continent that moves as believed by Wegener. Continents are part of a plate and what moves is the plate.
- Wegener had thought of all the continents to have initially existed as a super continent in the form of Pangaea. However, later discoveries reveal that the continental masses, resting on the plates, have been wandering all through the geological period, and Pangaea was a result of converging of different continental masses that were parts of one or the other plates.
- At the time that Wegener proposed his theory of continental drift, most scientists believed that the earth was a solid, motionless body. However, concepts of sea floor spreading and the unified theory of plate tectonics have emphasised that both the surface of the earth and the interior are not static and motionless but are dynamic.

Sea floor spreading:

- The mobile rock beneath the rigid plates is believed to be moving in a circular manner. The heated material rises to the surface, spreads and begins to cool, and then sinks back into deeper depths. This cycle is repeated over and over to generate what scientists call a convection cell or convective flow
- The ultimate proof of this was the discovery of “magnetic stripes” on the seafloor later in the 1960s: the magnetic domains in oceanic rocks recorded reversal of Earth’s magnetic field over time. The pattern was symmetric to the ridge, supporting the idea of symmetric seafloor spreading. The idea of subduction zones was born.
- With plate tectonics, we have a theory that explains Wegener’s observations and how lithosphere can be produced and consumed so that Earth does not change its size

Wegener’s continental drift theory lacked was a propelling mechanism. Other scientists wanted to know what was moving these continents around. Unfortunately, Wegener could not provide a convincing answer. The technological advances necessitated by the Second World War made possible the accumulation of significant evidence now underlying modern plate tectonic theory.

The following two forces are too small to bring in change:

- ❖ **Pole-fleeing or centrifugal force:** The spinning of Earth on its own axis creates a centrifugal force i.e., force oriented away from the axis of rotation towards the equator. Wegener believed the centrifugal force of the planet caused the super continent to break apart and pushed continents away from the Poles toward the equator. Therefore, He called this drifting mechanism as the “pole-fleeing