The san francisco earthquake

Environment, Disaster

Earthquake is a shaking of the earth’s surface. According to the theory of plate tectonics, the earth’s crust is formed by a number of large plates that move very slowly in various directions on the earth’s surface. Most earthquakes occur near a boundary between two plates. As one plate pushes past or over another, great stresses build up in the rock along the edges of the plates because friction prevents them from sliding past each other. Eventually, the stresses become great enough to rupture the rock. The edges of the plates slip a short distance in opposite directions, causing an earthquake.

The greater the stresses that have built up, the greater the resulting earthquake is. Some earthquakes are caused by the movement of lava beneath the surface of the earth during volcanic activity. The cause of earthquakes that occur in regions far from volcanoes or plate boundaries is uncertain. An earthquake is accompanied by three types of waves that vibrate the earth’s surface—primary, secondary, and surface waves. The primary wave alternately compresses and expands the rock of the earth’s interior. This wave moves through the earth at a speed that varies greatly.

Under some conditions it is about five miles per second. The secondary wave shakes the rock sidewise as it advances. It travels through the interior of the earth about three-fifths as fast as the primary wave. While the Surface wave is the most damaging, resembles the waves produced when a stone is dropped in a puddle. The surface of the table has not vibrated more than a fraction of an inch. This is why a slight tremor in the earth can create havoc on the surface. Moreover, earthquakes toppled entire cities, killed thousands of persons, and caused disastrous fires and oceanic waves (tsunamis).

However, most earthquakes, of which there are thousands each year, are relatively weak and cause little or no damage. No part of the world is entirely free of earthquakes, but they occur most frequently in areas in which the earth’s crust is still changing. These areas, called earthquakes belts, include the shores of the Pacific Ocean and an area extending from south-central Asia to the Mediterranean Sea. Major earthquakes often leave visible signs of their power, altering features on the earth’s surface. Reelfoot Lake in northwestern Tennessee was created by a series of earthquakes centered on New Madrid, Missouri, in 1811-12.

The San Francisco earthquake of 1906 was associated with the great San Andreas Fault in California, a fracture in the earth’s surface that can be traced for more than 500 miles. An earthquake, even a small one, may be accompanied by a low, rumbling sound like thunder. The vibration of a mild quake feels like that caused by the passing of a heavy train. Large quakes are usually followed by many smaller quakes called aftershock. Aftershocks can occur during a period of several months after the original quake.