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Plate Tectonics Just as a child may shake an unopened present in an attempt to discover the contents of a gift, so man must listen to the ring and vibration of our Earth in an attempt to discover its content. This is accomplished through seismology, which has become the principle method used in studying Earths interior. Seismos is a Greek word meaning shock. akin to earthquake, shake, or violently moved. Seismology on Earth deals with the study of vibrations that are produced by earthquakes, the impact of meteorites, or artificial means such as an explosion. On these occasions, a seismograph is used to measure and record the actual movements and vibrations within the Earth and of the ground. Types of seismic waves (Adapted from, Beatty, 1990.) Scientists categorize seismic movements into four types of diagnostic waves that travel at speeds ranging from 3 to 15 kilometers (1.9 to 9.4 miles) per second. Two of the waves travel around the surface of the Earth in rolling swells. The other two, Primary (P) or compression waves and Secondary (S) or shear waves, penetrate the interior of the Earth. Primary waves compress and dilate the matter they travel through (either rock or liquid) similar to sound waves. They also have the ability to move twice as fast as S waves. Secondary waves propagate through rock but are not able to travel through liquid. Both P and S waves refract or reflect at points where layers of differing physical properties meet. They also

reduce speed when moving through hotter material. These changes in direction and velocity are the means of locating discontinuities.

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