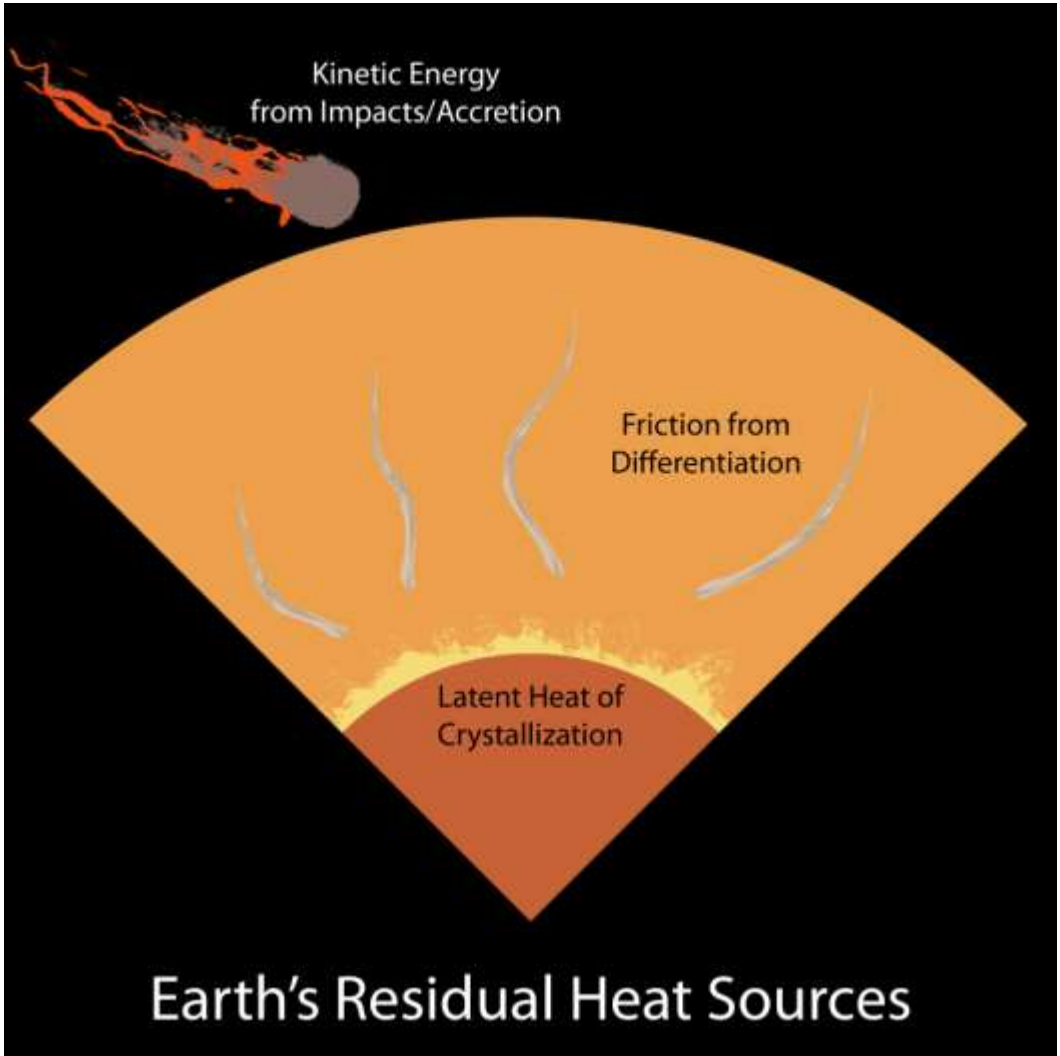
Handout 1 (green) Earth's Interior

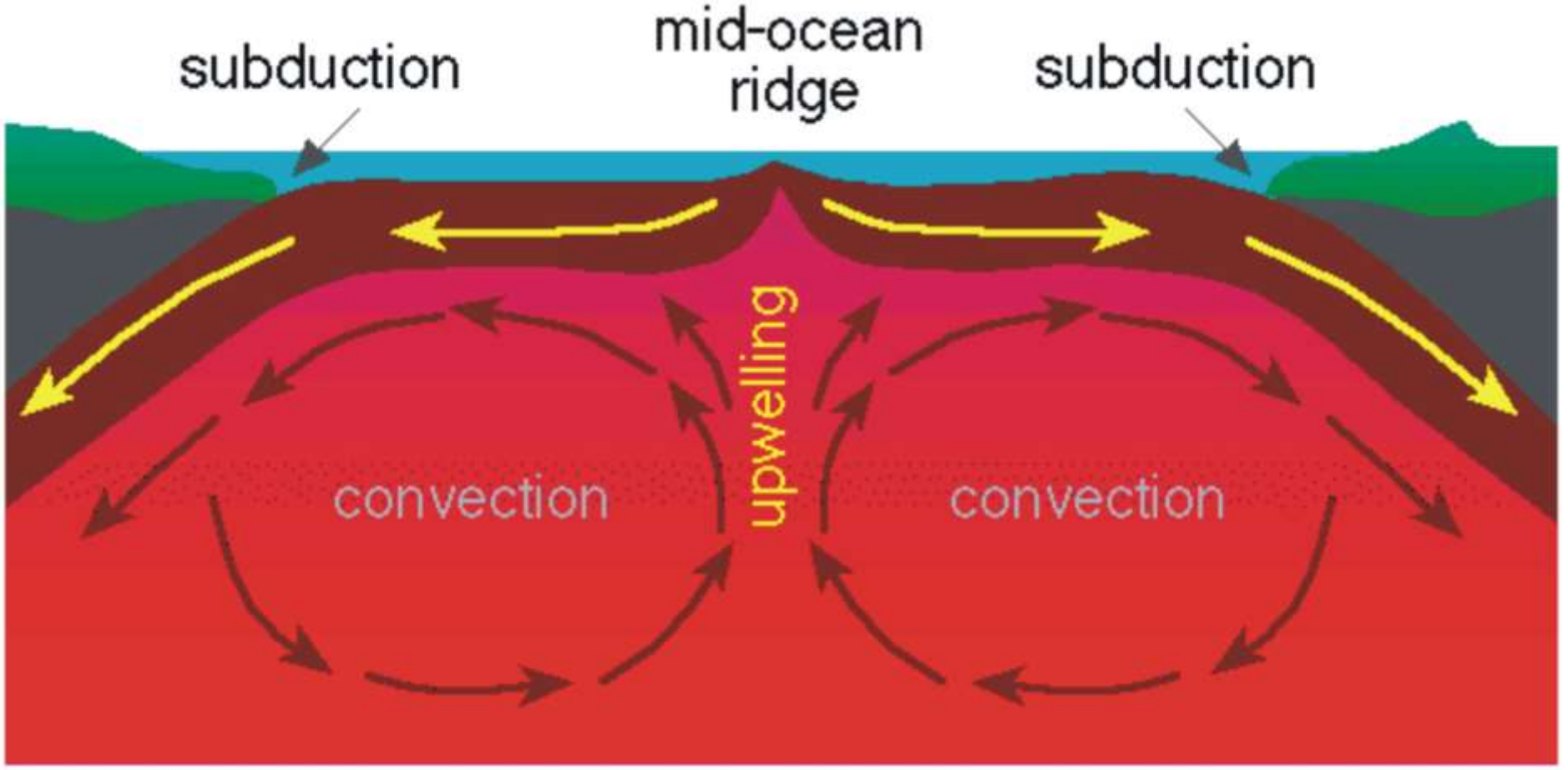
Standard 2.2

1. When Earth formed, its interior was heated by what two processes?

- Heat of formation
- Radioactive decay

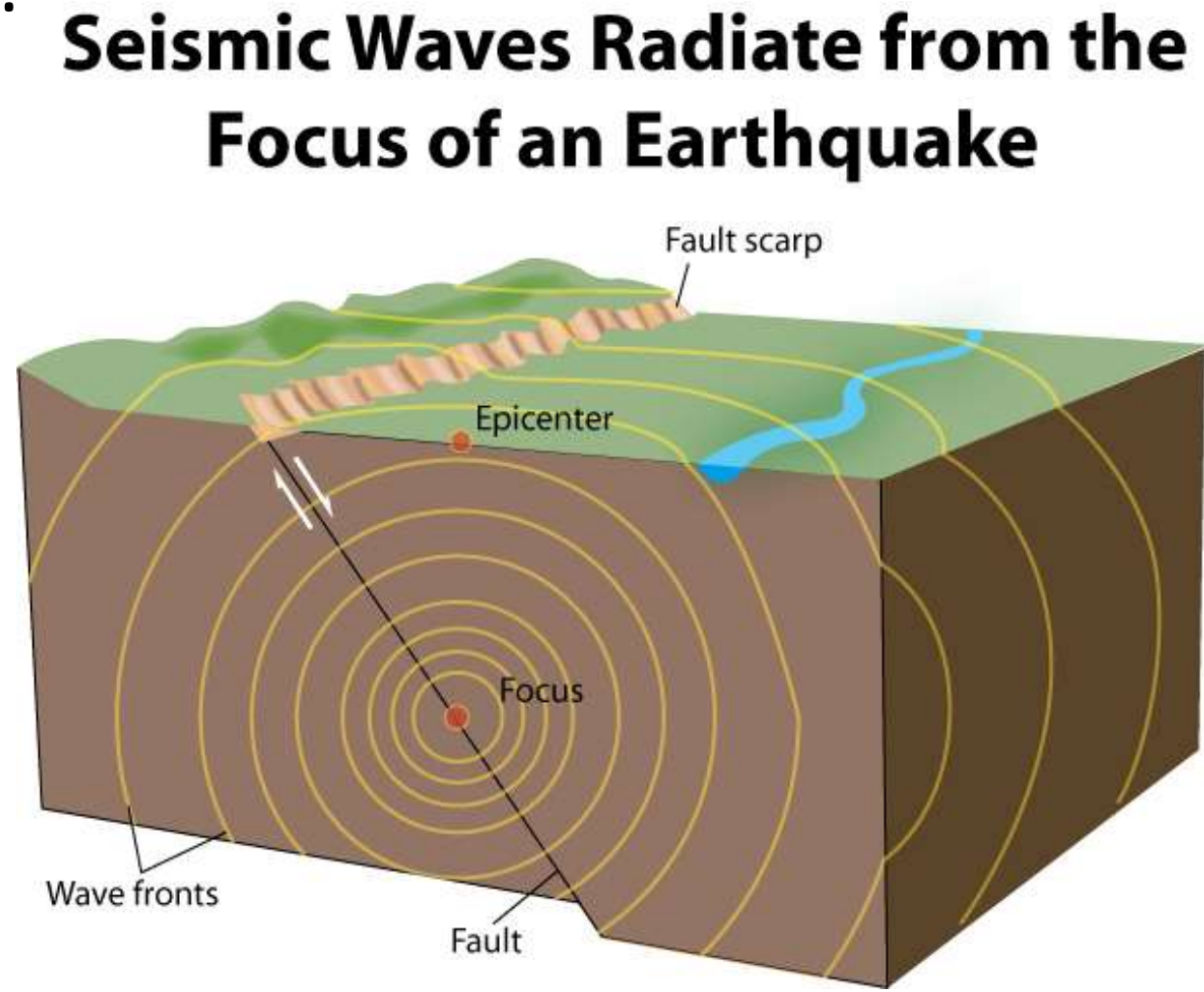


2. Because Earth's interior is warmer than its surface layers, hot materials move toward the surface in a process called _____convection_____.



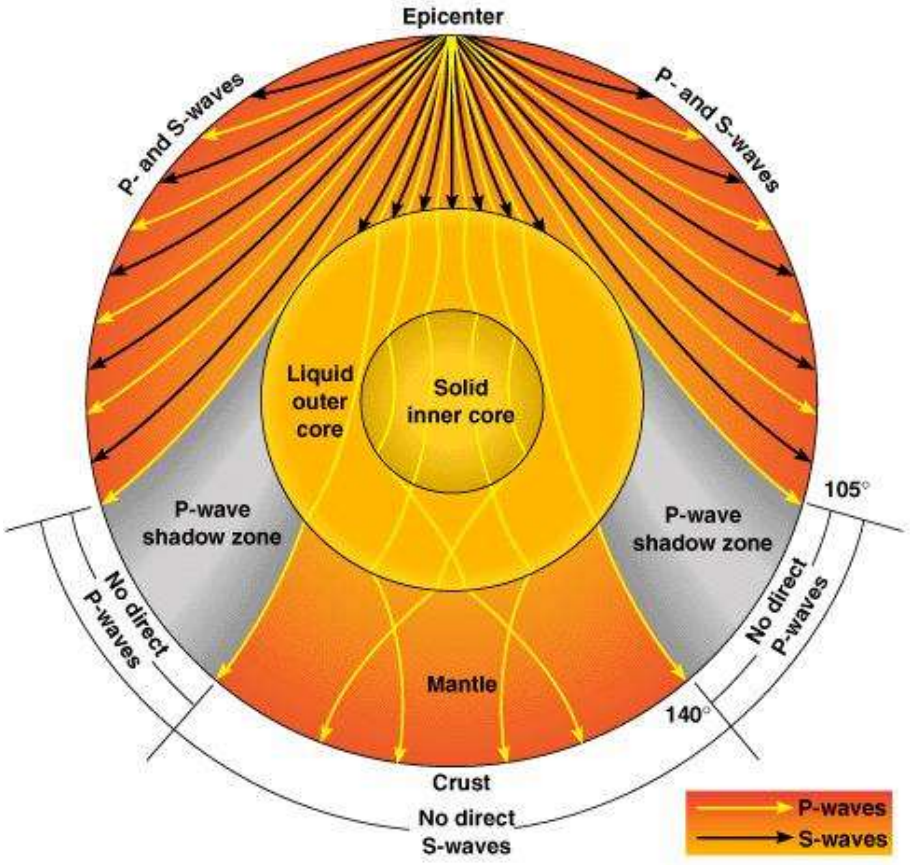
3. When rocks along a fault slip into new positions, they release energy in the form of vibrations called

- seismic waves.



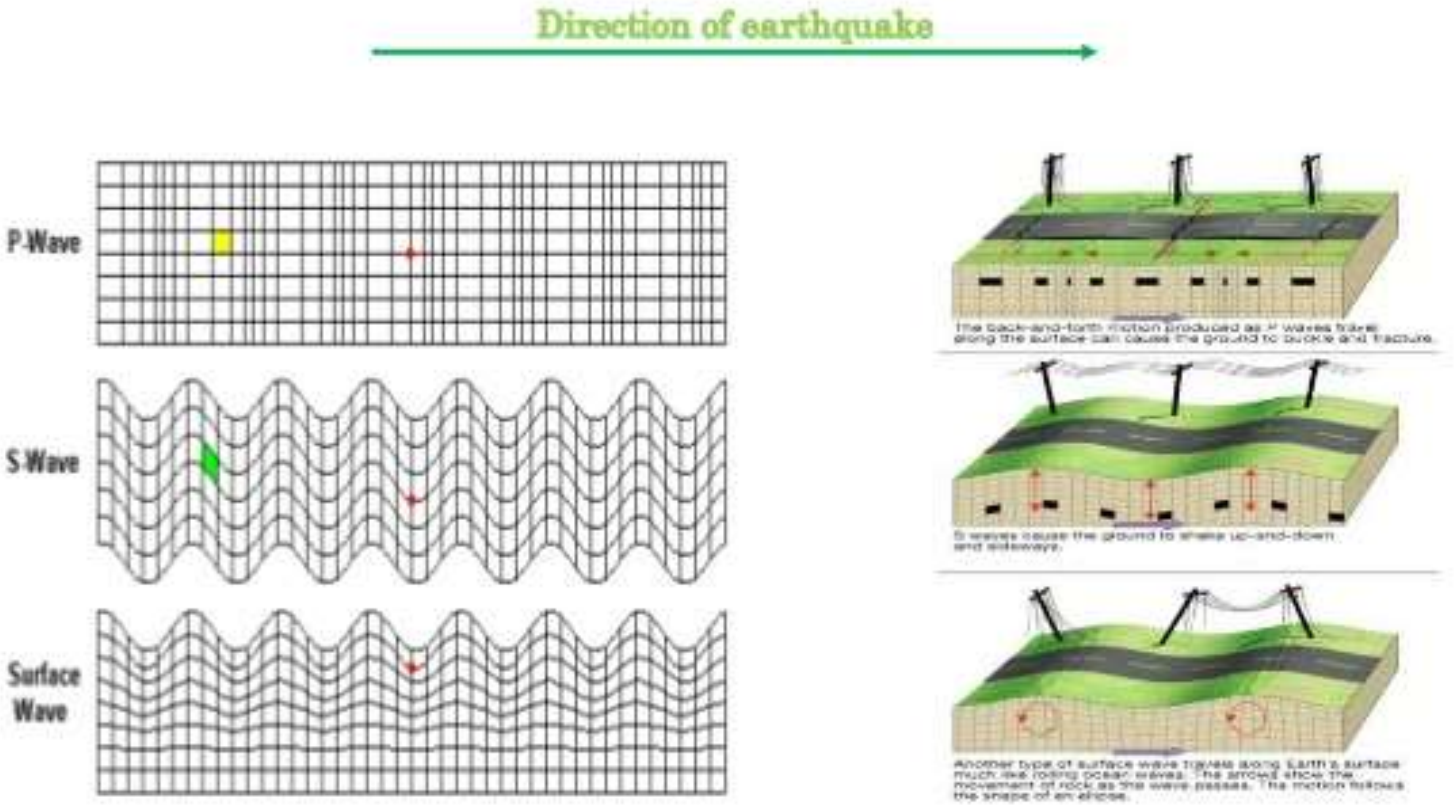
4. Where do seismic waves travel?

- outward in all directions from the focus through the surrounding rock



5. How many types of waves do earthquakes produce?

- Two

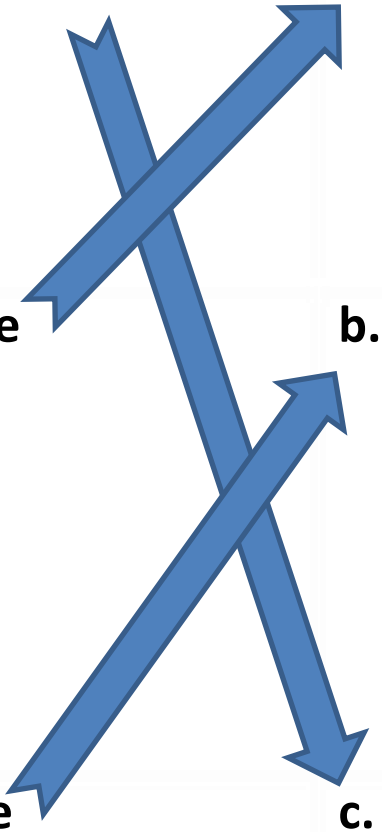


Matching 6-8

6. body wave

7. p wave

8. s wave

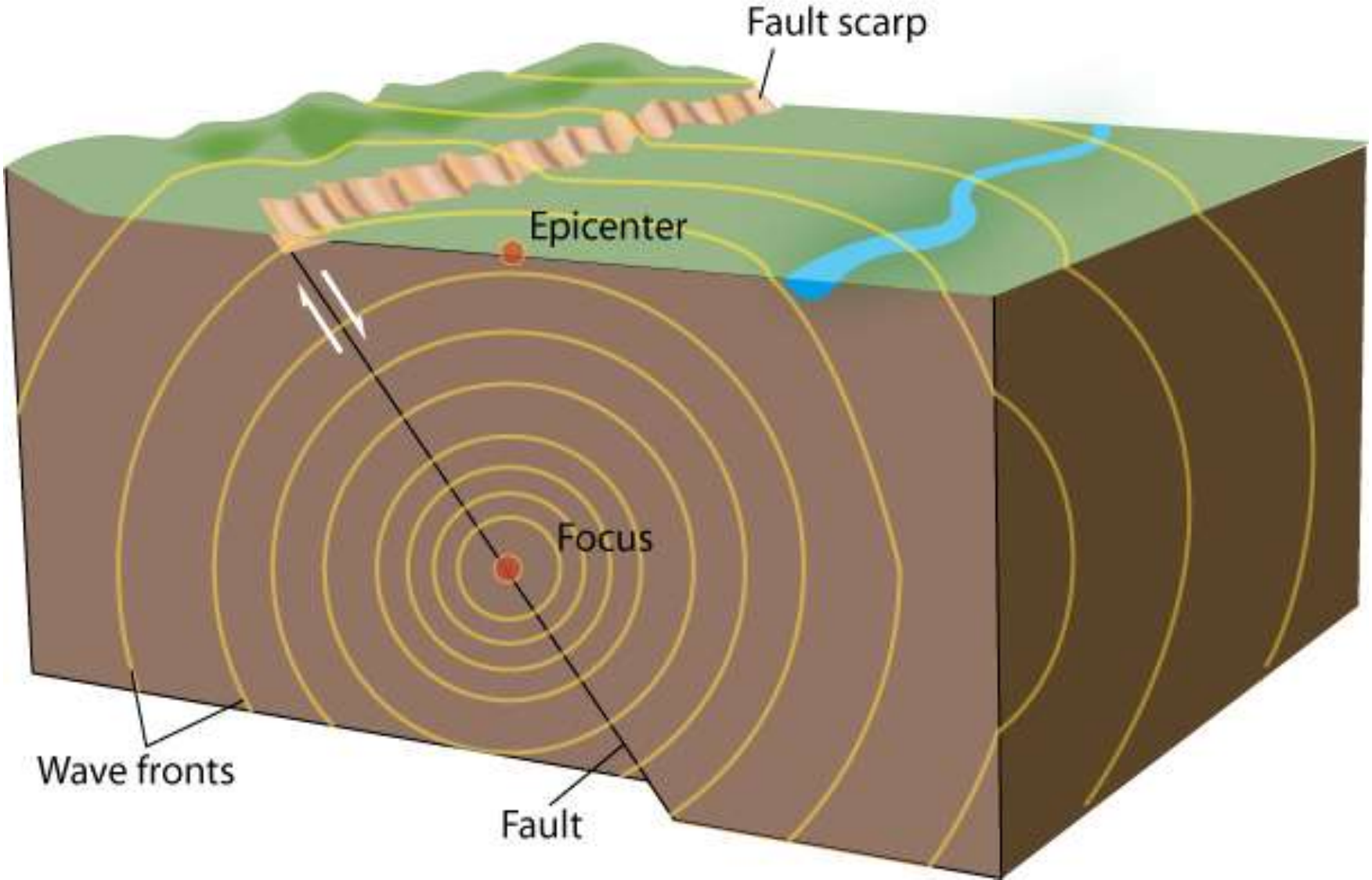


a. **the fastest seismic wave; causes particles of rock to move in a back-and forth direction parallel to the direction in which the wave is traveling; can travel through solids, liquids, and gases**

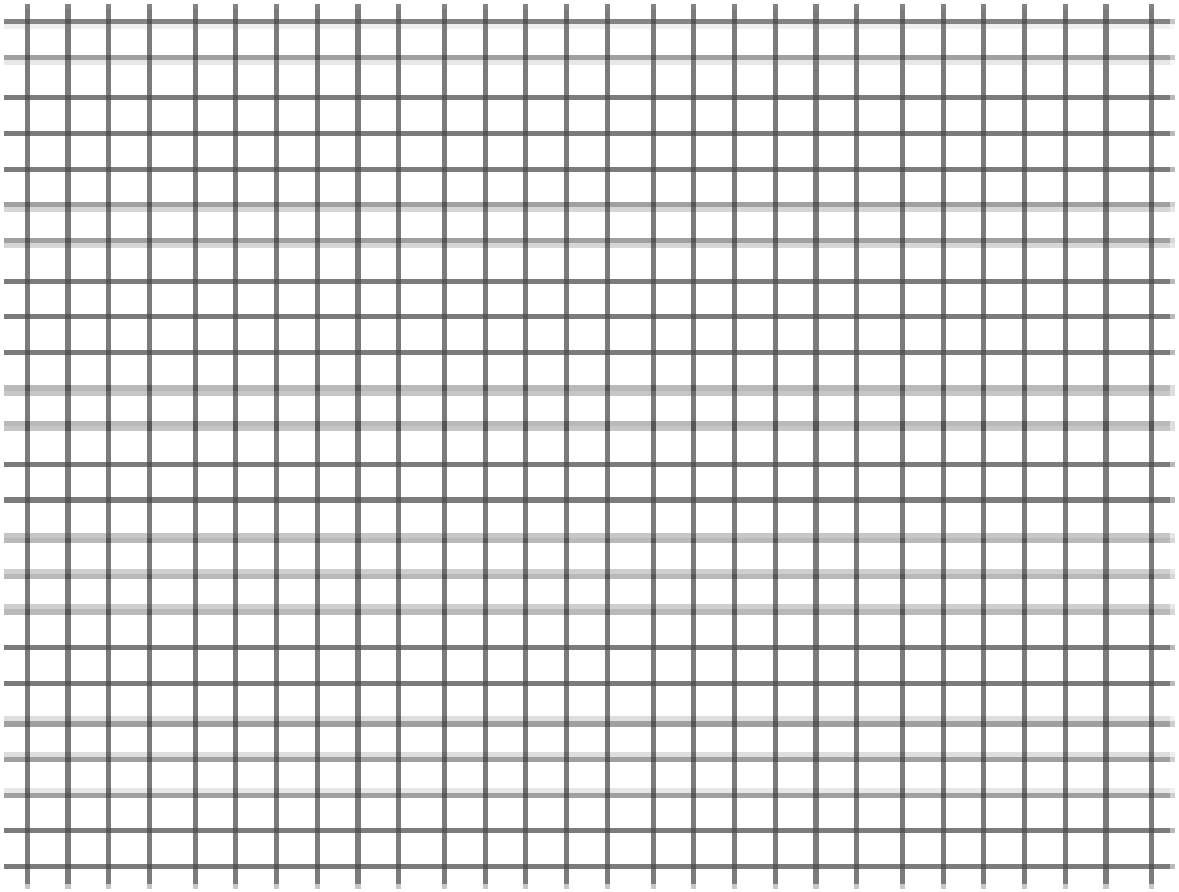
b. **the second-fastest seismic wave; causes particles of rock to move in a side-to-side direction perpendicular to the direction in which the wave is traveling; can only travel through solids**

c. **a seismic wave that travels through the body of a medium**

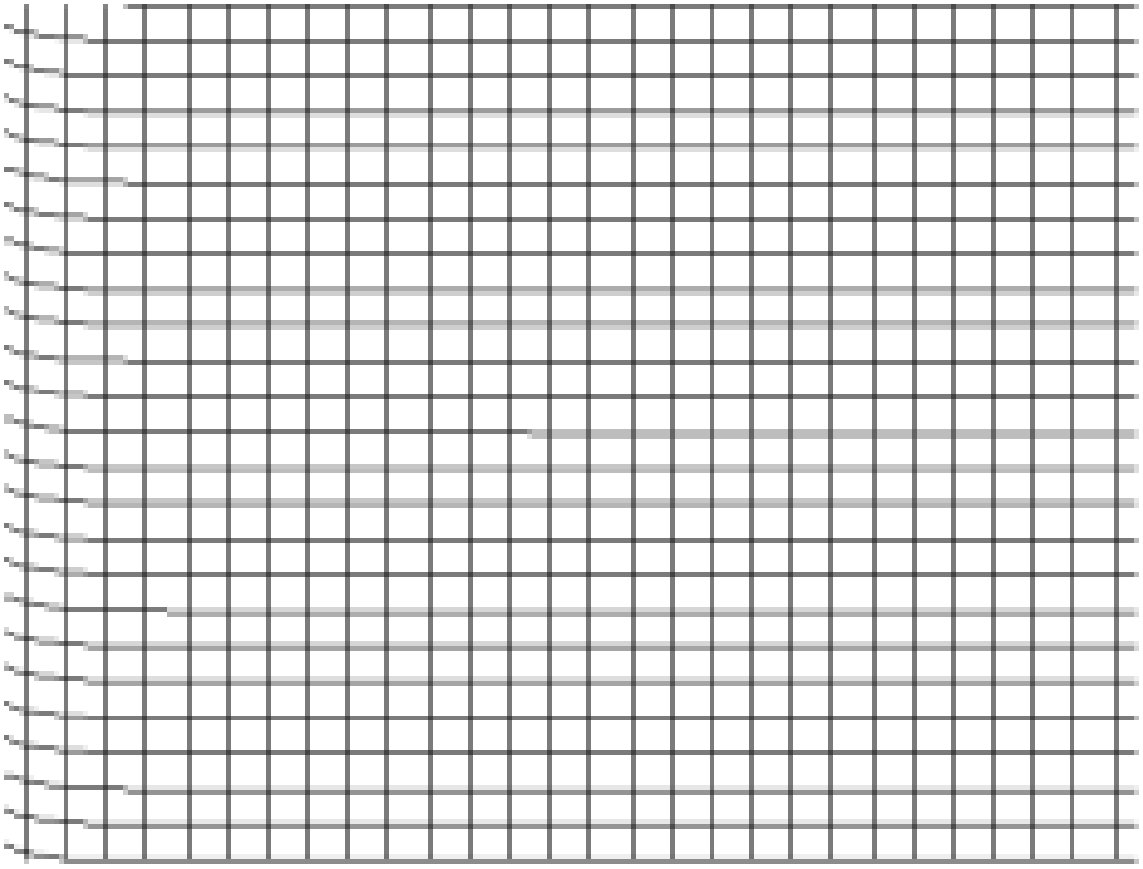
Seismic Waves Radiate from the Focus of an Earthquake



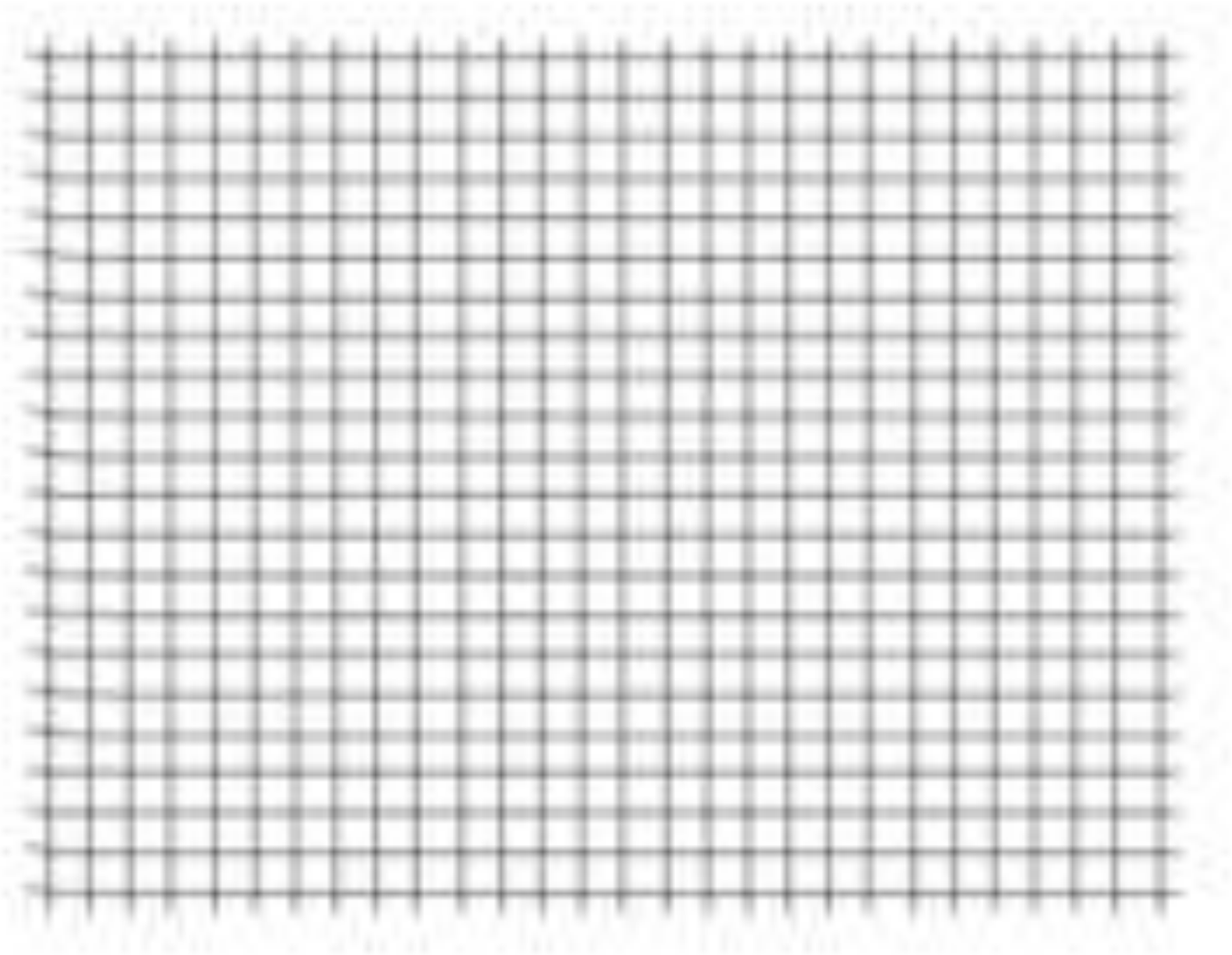
P waves



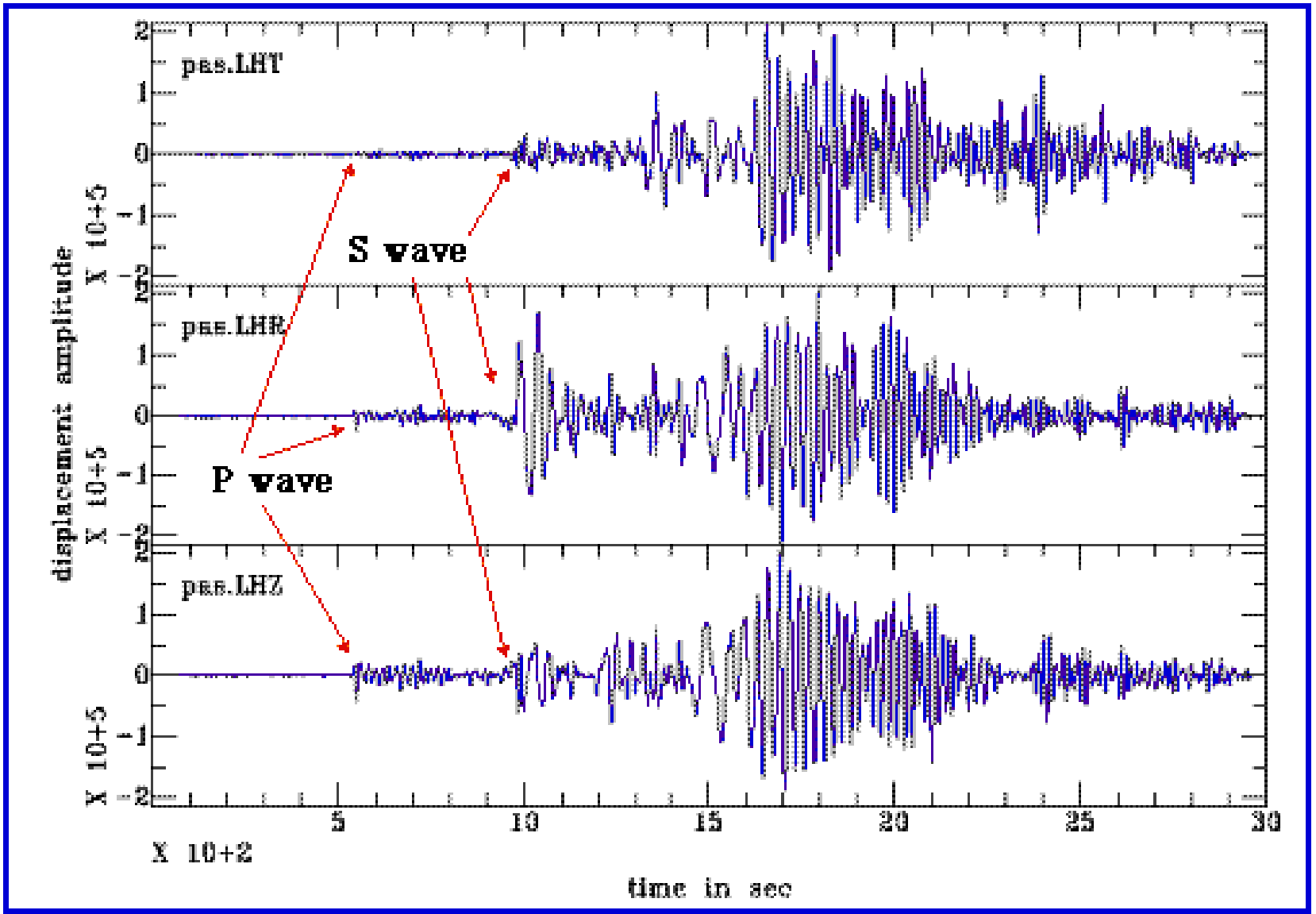
S waves



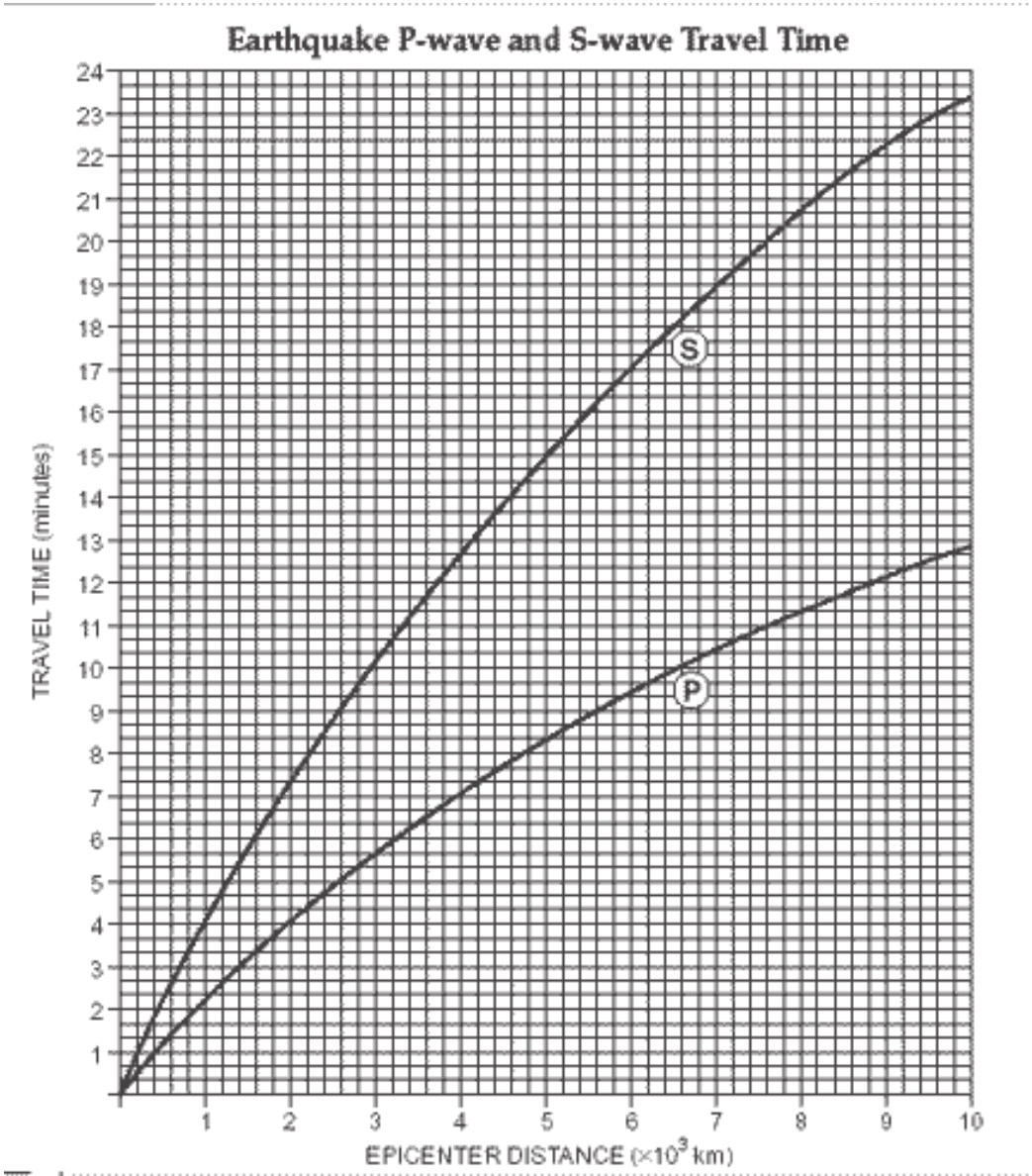
P waves and S waves



Seismic Waves

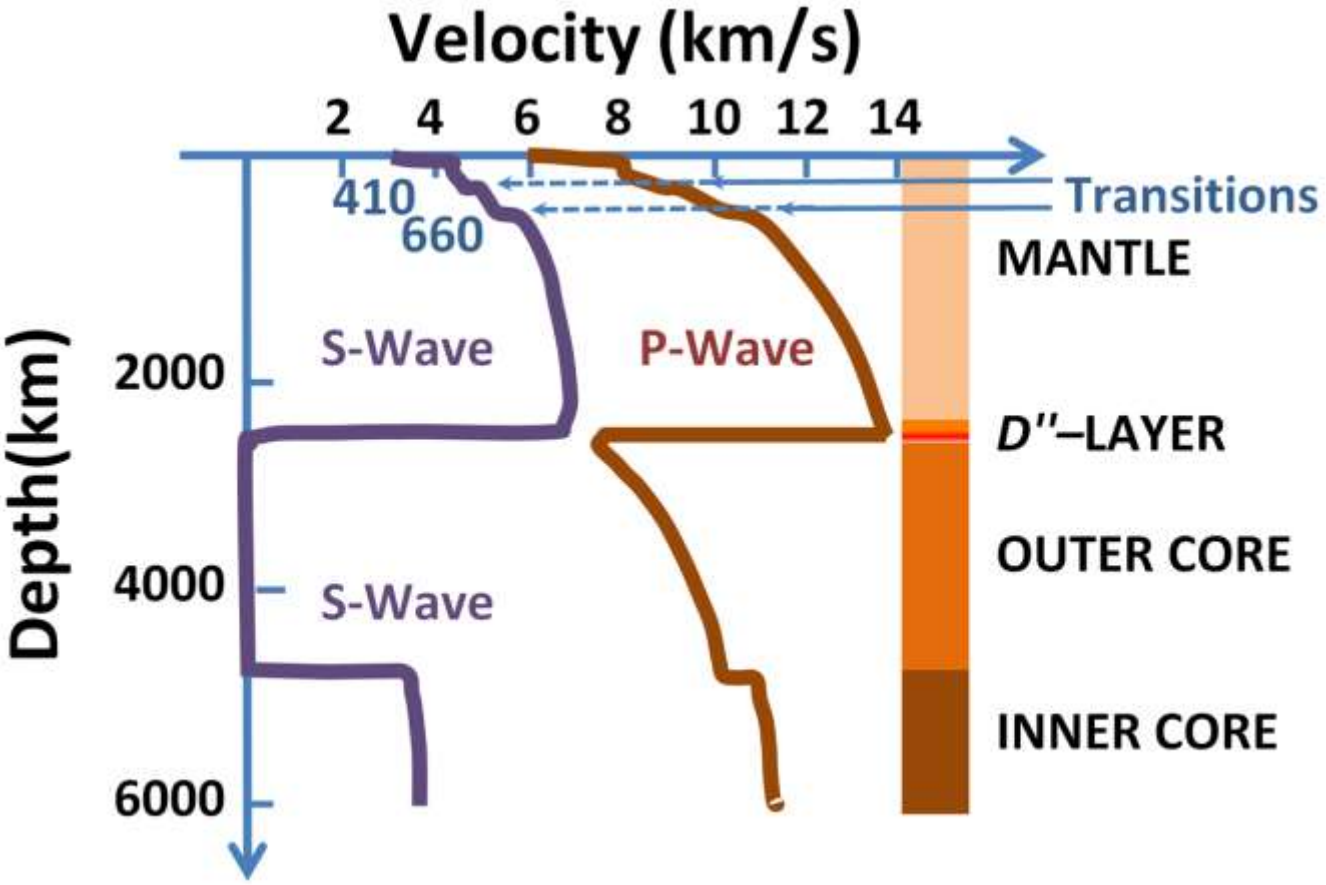


Lag time in Arrival of P wave and S wave.



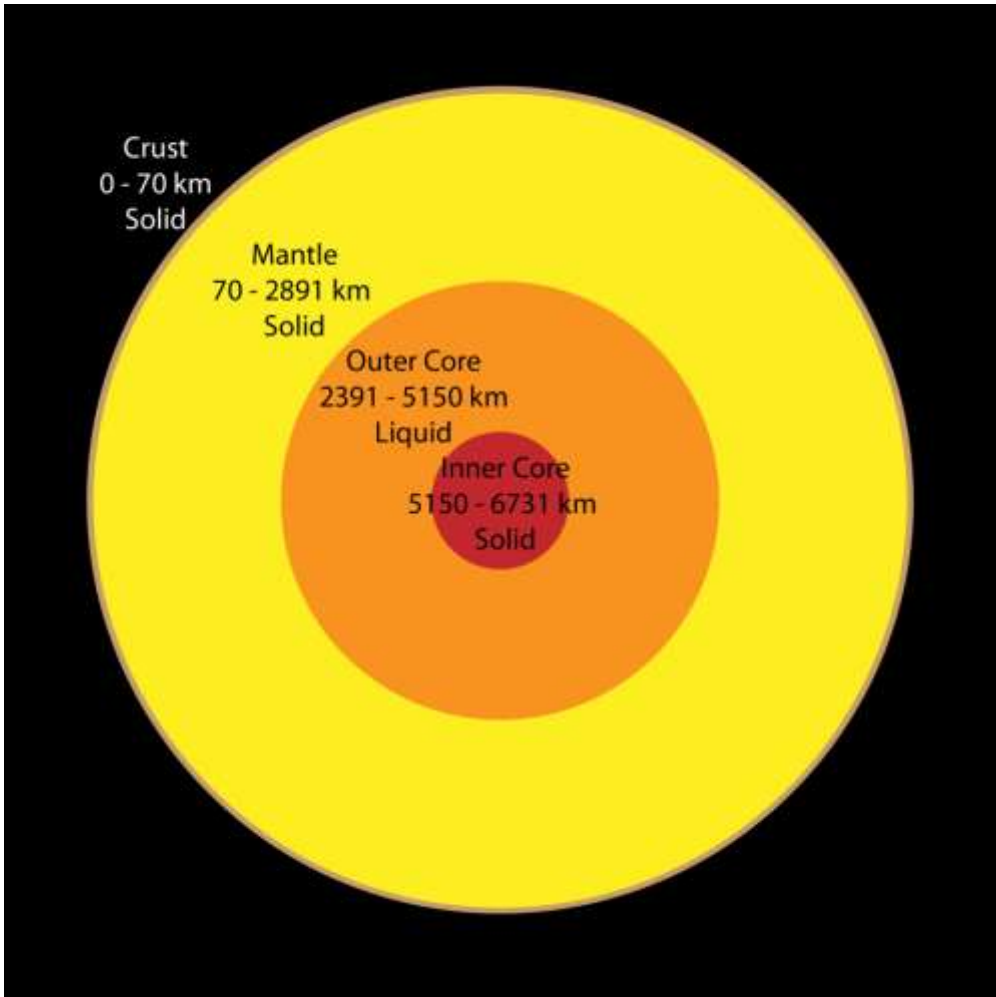
9. The composition of the material through which P waves and S waves travel affects

- the speed and direction of the waves.



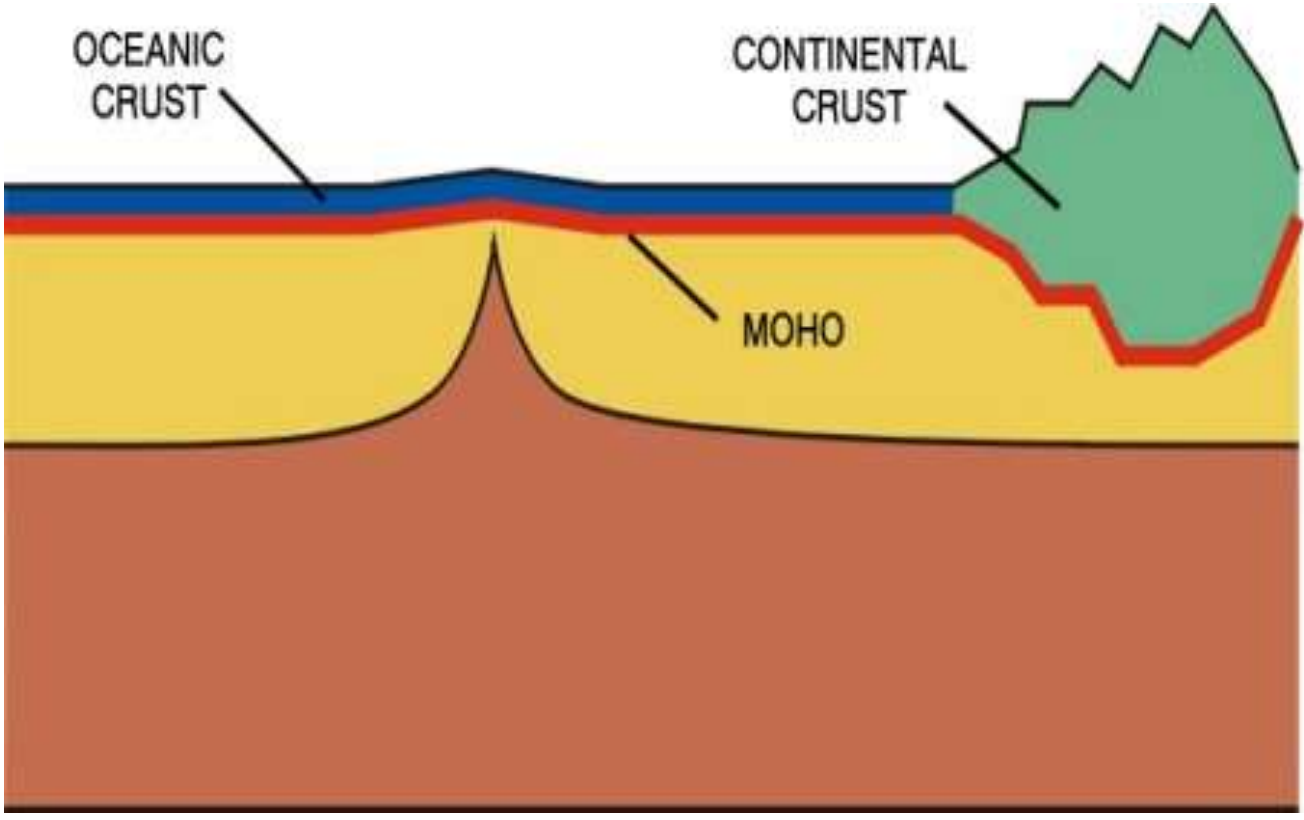
10. What type of materials do P waves travel through fastest?

- materials that are very rigid and not easily compressed



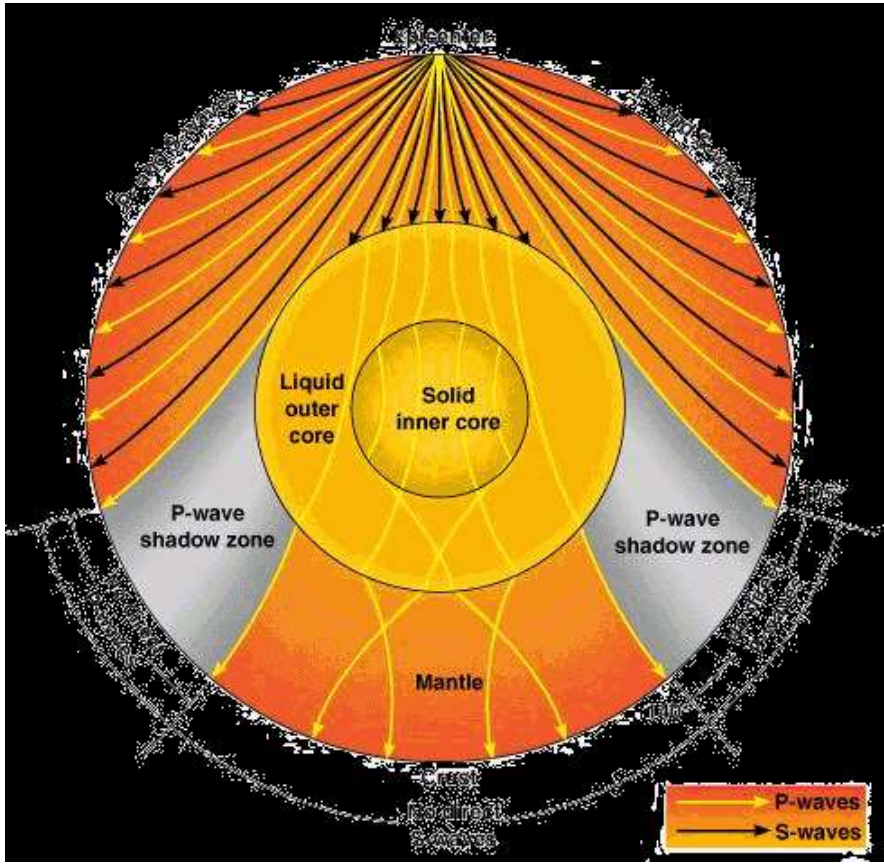
11. What did Croation scientist Andrija Monorovicic discover in 1909?

- The speed of seismic waves increases abruptly at about 30 km beneath the surface of continents.



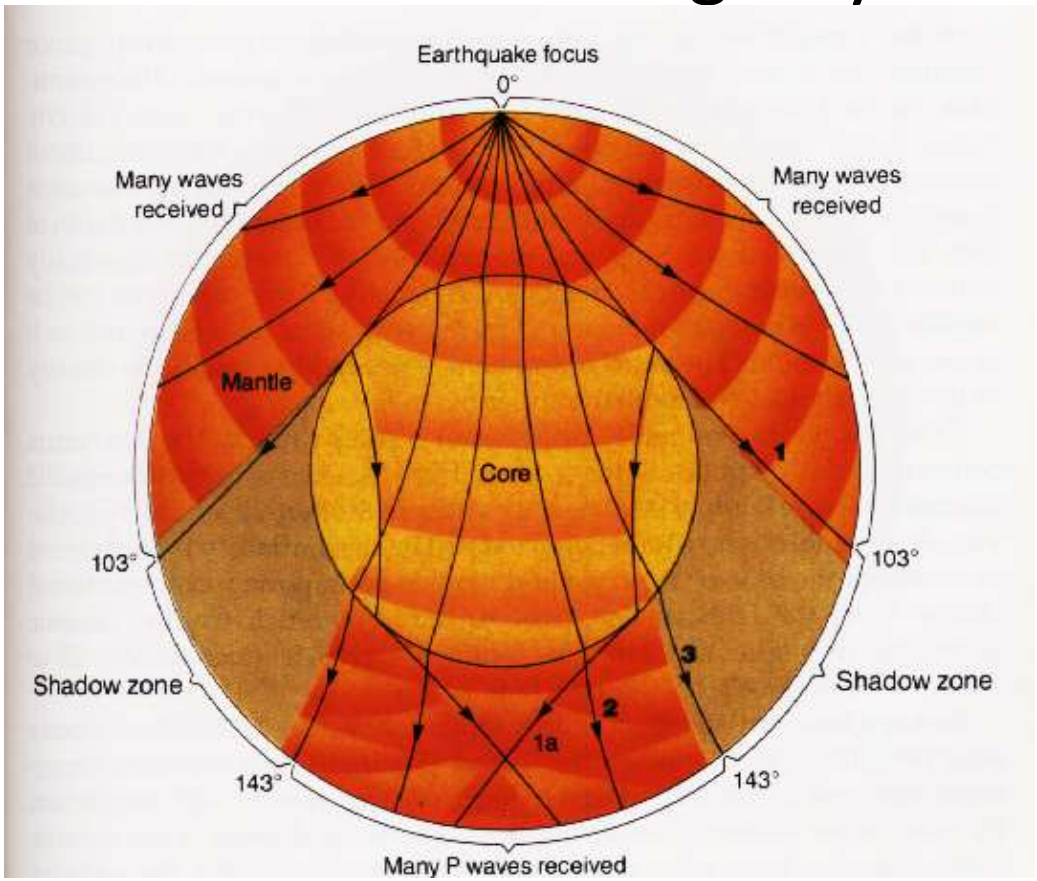
12. Define shadow zone.

- An area on Earth's surface where no direct seismic waves form a particular earthquake can be detected.



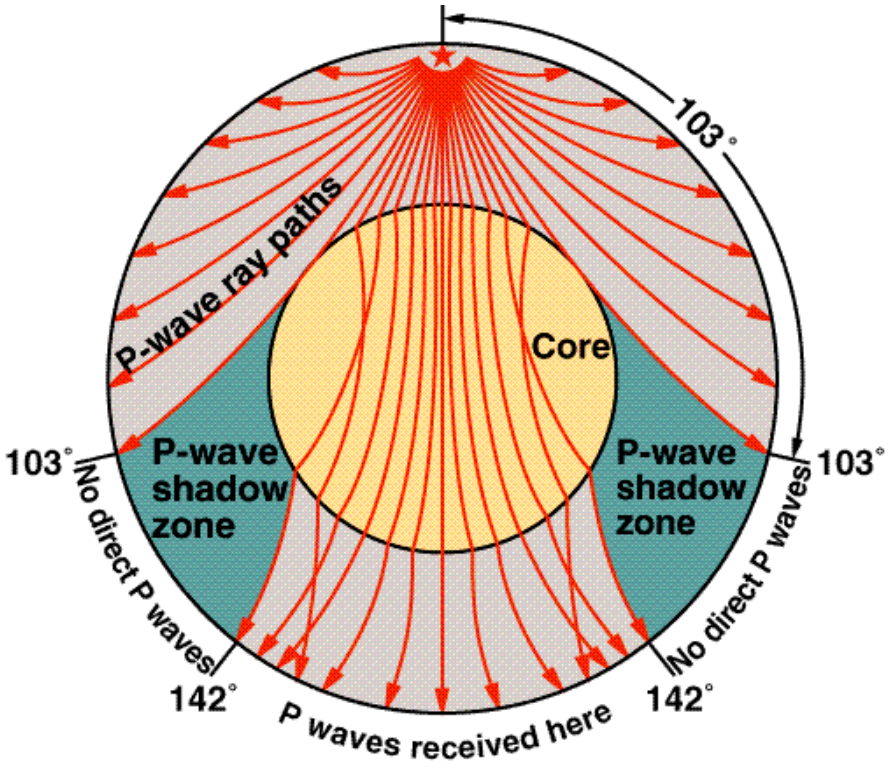
13. Why do shadow zones exist?

- Because the materials that make up Earth's interior are not uniform in rigidity.



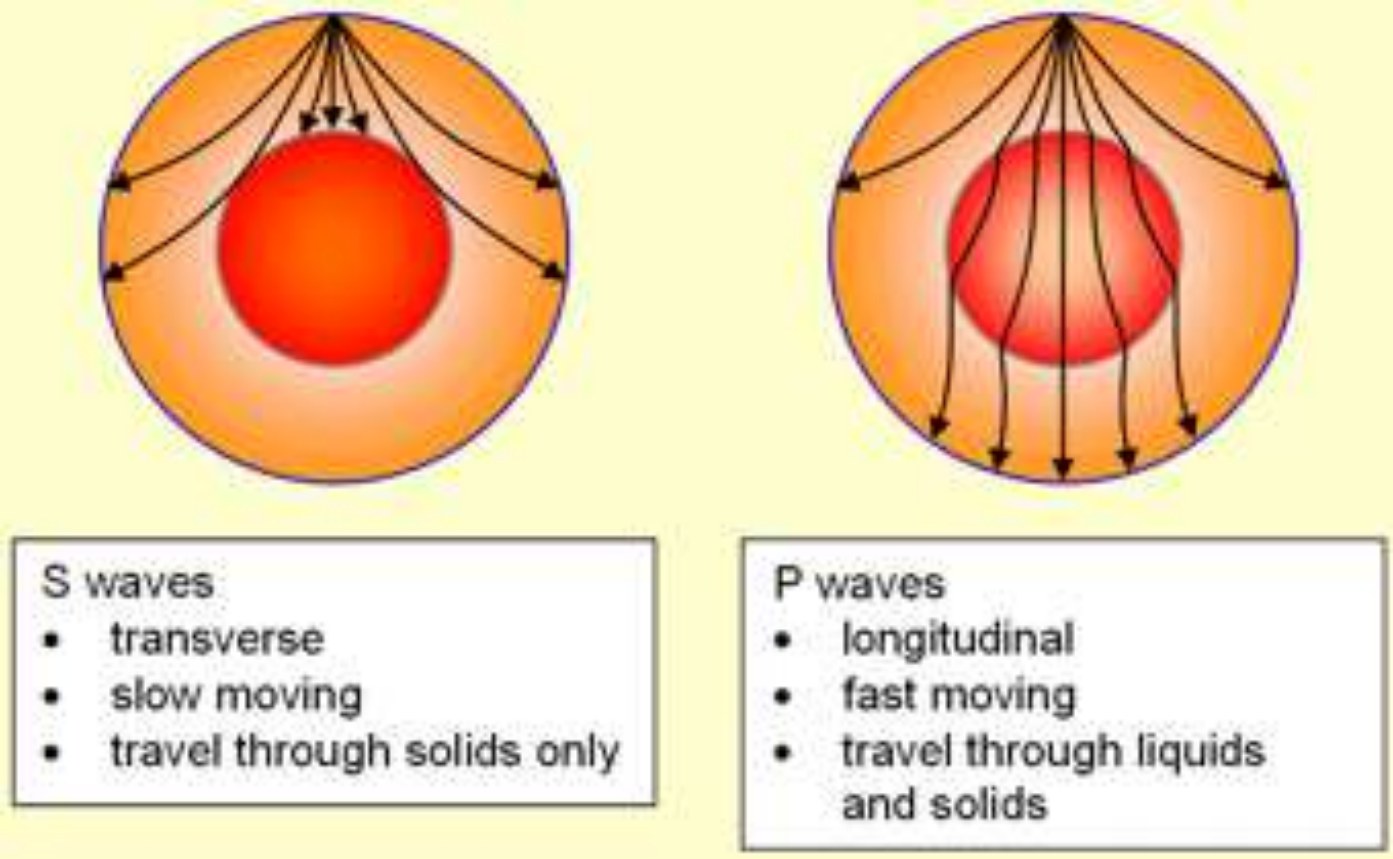
14. What happens to seismic waves as they travel through materials of differing rigidities?

- The speed of the waves changes and the waves will bend and change direction as they pass through different materials.



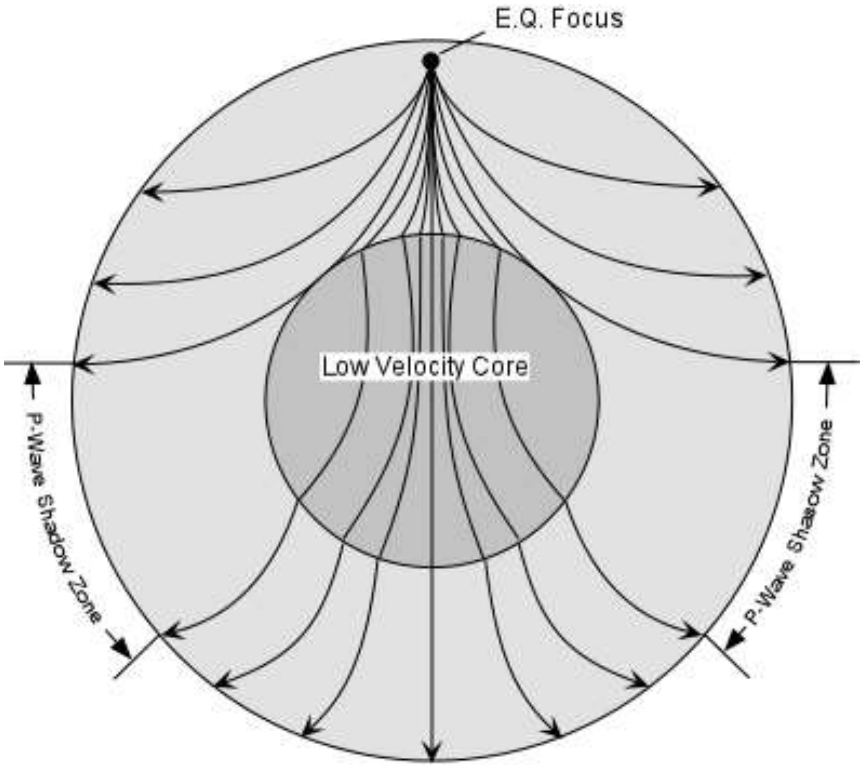
15. Why don't S waves reach the S-wave shadow zone?

- Because S waves cannot pass through the liquid outer core.



16. How does a P-wave shadow zone form?

- The speed and direction of the waves change as they pass through each layer, and the waves bend in such a way that a P-wave shadow zone forms.



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