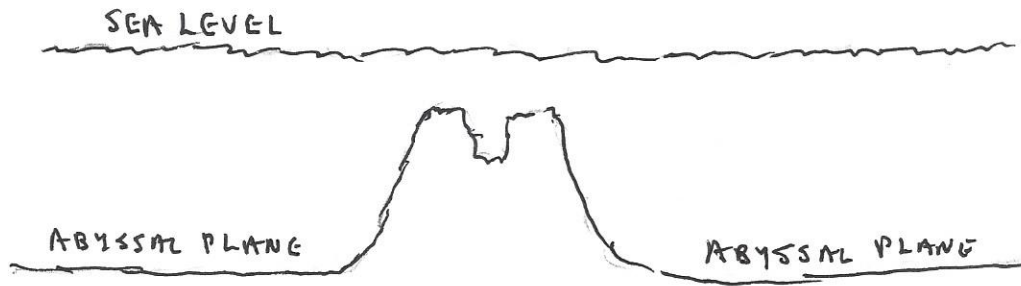


2. Mid-oceanic Ridges (MORs)



At the ridge:

- A. Higher than average heat flow--**
Normal geothermal gradient is $1^{\circ}\text{F}/100'$ or $30^{\circ}\text{C}/\text{km}$. At the MOR the heat flow is higher.
- B. Earthquake foci--**
Earthquakes occur along the MORs
- C. Volcanoes--**
Volcanoes occur along the MORs.
Starting in Iceland go south through the north Atlantic Ocean and then into the south Atlantic Ocean. How many volcanic islands can you count? End with Tristan da Cunha.

D. Grabens(German for grave)--
Grabens are produced by tension as material pull apart. The center of each ridge contains a graben.

As go away from ridge:

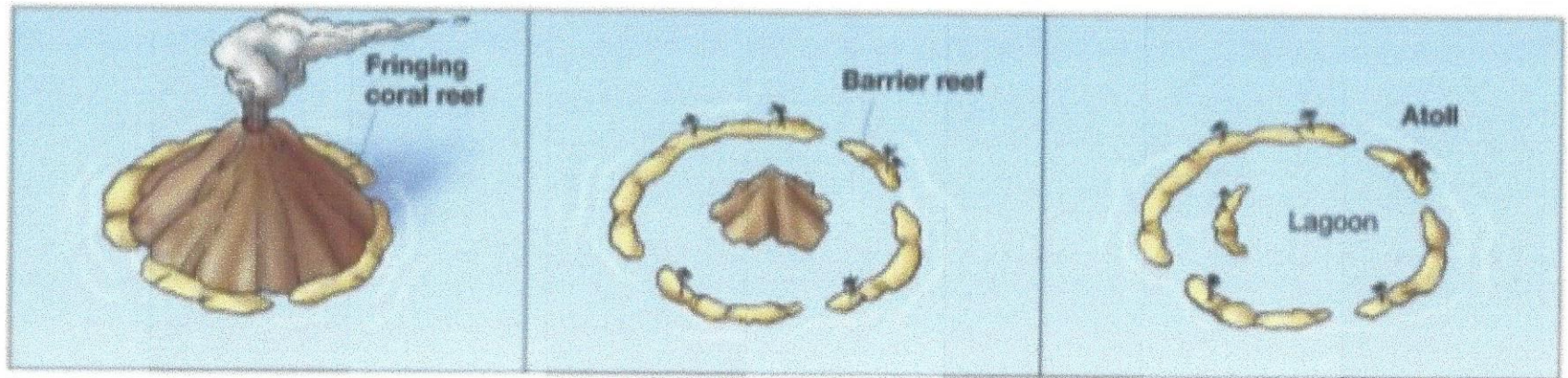
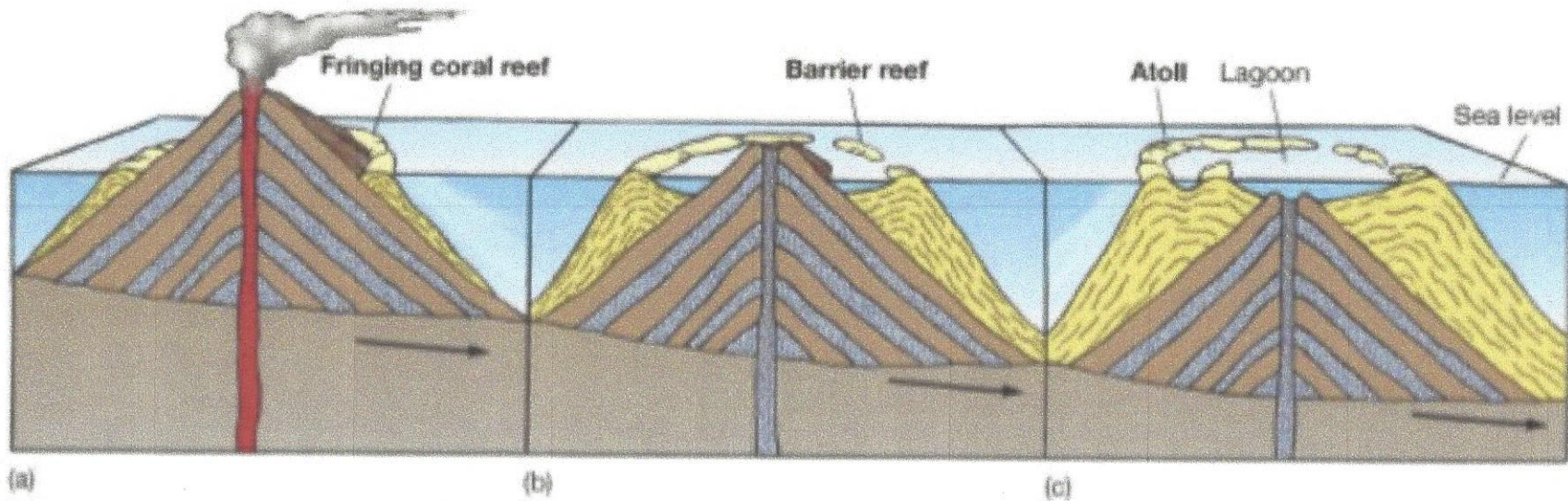
E. Radiometric dates--
Cores taken by the Glomar Challenger were dated using radiometric methods. The younger dates were closer to the ridge and the ages got older as you moved away from the ridge.

F. Volcanoes--
Volcanoes near the ridge were classified as active. As you moved away from the ridge they became dormant and even further away they became extinct.

G. Coral reefs--

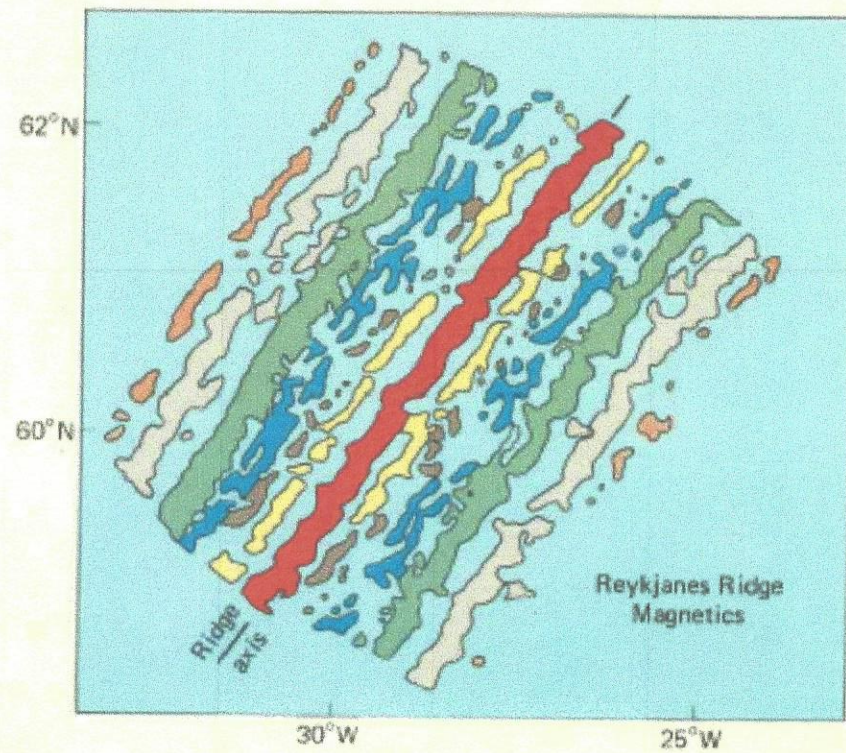
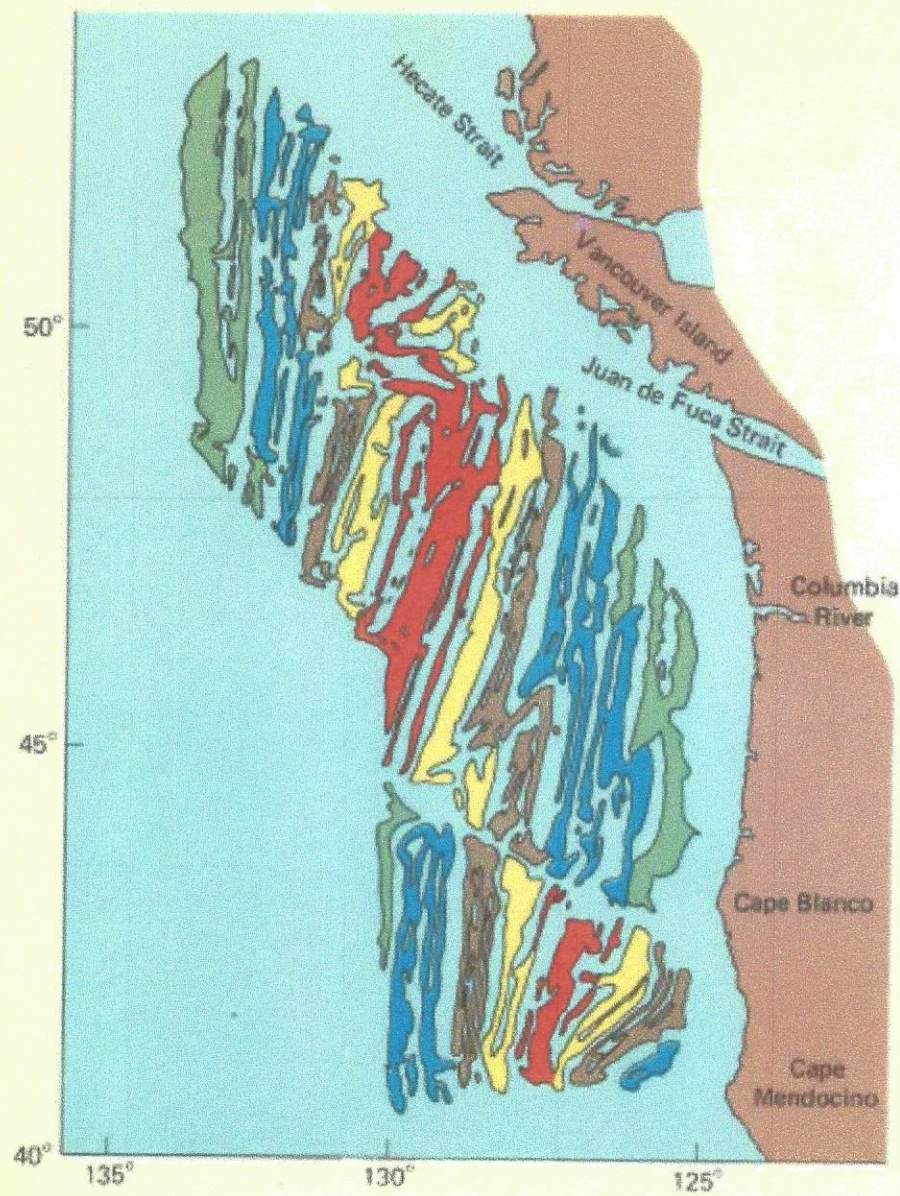
When a volcano breaches the surface, it provides a foundation on which a coral reef can build. The reef is all around the volcano and is called a fringing reef. As wave action occurs, part of the reef and part of the volcano erode. The reef is a living organism and capable of renewing itself. The volcano can't. The reef acts as a barrier for the volcano to further erosion and is called a barrier reef. However, not a very good barrier because through time all the volcano is eroded. This is called an atoll. The way I remember this is that there is nothing left of the volcano at all. I know that is corny!

Stages of coral reef development



H. Paleomagnetic strips--

There are two types of remnant magnetism. If igneous processes are active, this is called thermal remnant magnetic (TRM). If sedimentary processes are active, this is called depositional remnant magnetism (DRM). Once a magnetic mineral is formed in a magma or as a particle being transported by water and the water stops flowing, two forces are working on it. Gravity is causing the particle to settle because it has a higher specific gravity than the liquid doing the transporting. The second force acting on the magnetic particle is the Earth's magnetic field. The particle points to the north magnetic pole as it is settling. As you move away from the ridge, you see bands with similar magnetic orientation. One band indicate north in one direction. The next band shows a polar reversal. The next band is as the first one is. And so on. The bands are symmetrical on both sides of the ridge.



The interpretation of all this data is that material is being brought up to the surface from depth and then spread out along the surface. The driving force seems to be heat inside the Earth.

Extinct---Dormant---Active **Volcanoes**



Age Young----->Older



Atoll---Barrier---Fringing **Coral reefs**

