Unit 2 GeoMation: Fault Types

There's three major fault types that correspond to the three major plate boundary types. And we're going to look at these. They're push together, pull apart, and slide past. And so right now, we're looking at a block of rock. And this block of rock is being squeezed by great tectonic stresses that are pushing on it from the sides. And this block of rock happens to be the place that you decided to build your giant, multi-million dollar McMansion that's just sitting up there on a hill.

Underneath your beautiful McMansion, there is an interesting yellow layer of rock, which you can follow. Now, we hope that you were smart enough, when you built your McMansion, that you didn't fail to account for the earthquakes that happen in the place that you built it, because otherwise, you're going to be an unhappy camper. Because when the earthquake happens, you shove one side above the other in the push together environment, and then your house tends to fall down, and then you'd better know your insurance agent very well. And the layer of rock will be offset in the earthquake. So that is a push together plate boundary.

We also know that there are pull apart plate boundaries that are going to do a different motion pattern. There is a block of rock again. You have gotten the insurance settlement on your McMansion, and you have built a new one, which is sitting up here on the hill. But uh-oh, you didn't check with your geologist friends, or you didn't remember your GEOSC 10, and so now you have a fault underneath you.

But it's a slightly different fault in this case, in the sense that rather than being pushed together, now this one is being pulled apart. If you have a pull apart fault going on, then what you will find is that sometime later, you're in a Death Valley situation. The earthquake happens. It drops the valley relative to the mountain, and you get an offset that looks something like this.

Your yellow layer of rock is still there. It has still been offset. And again, if you haven't been careful in your construction, or you haven't worried too much about things, your house has fallen down and your insurance agent would be a good phone call.

Now, there's a third possibility. Suppose that you've now gone broke because you didn't have good insurance. You're flying over the San Andreas Fault, and as you look down at the San Andreas Fault, you see the highway that's crossing the fault, and you're very pleased to see your new gas station where you're working because you have to raise money somehow. And in the middle of your highway, there are these beautiful, really fat dashed yellow lines that you see.

Now unfortunately, if you're not careful, you may have problems yet again, because the San Andreas Fault has motion going on. And so you come back some time later and the road has been offset, and the offset of the road is not a good thing for you. It came about because of the tendency for the west side of California to move north and the east side of California to move south.

And when it did what it was doing, the cars come driving along. And if a car comes driving along this particular highway and isn't careful what the car is doing, why, the car will run over the rubble that is left of your gas station after the earthquake. And so these are the three possibilities, the push together, the pull apart, and the slide past earthquakes corresponding to those plate boundaries.