



Rocks in the field

Magma, pressure and gas bubbles.

TONY:

At this locality I want to show you another feature of igneous rocks, but before we do that I'm going to try a little experiment. When magma comes to surface you find that the reduction in pressure on the magma allows any volatile present in it start to exolve in the form of gas bubbles. The effect of that can be in some cases can be to make the lava froth up. We're going to see if we can do the same here with a Coca Cola bottle, the top is tightly screwed on at the moment, so the Coke is under pressure, but as I remove the top, gas is starting to bubble up towards the surface exolves as the pressure is reduced on the Coca Cola and the carbon dioxide, if you like, lateritic.

If we turn to the rocks themselves. Here we can see the top of an older flow which has been weathered and above it we can see a much fresher rock. And within that rock we have these gas bubbles, but they are empty, but as we move down towards the base of the flow, some of the cavities are actually filled with a white mineral, which is either zeolite or calcite. We have one slight conundrum here though, in the sense that the bubbles are at the base of the flow. As the magma is erupted onto the surface, and once it starts to cool as a lava flow, you actually start to get some gas rising towards the surface where it gets trapped. But the lava flow is moving and what you see happening in effect is that as the lava flow moves forward these early formed bubbles get brought down onto the base of the flow.