**Moving Rocks**

Professor: Now we’ve got a few minutes before we leave for today. So I’ll just touch on an interesting subject that I think makes an important point. We’ve been covering rocks and different types of rocks for the last several weeks. But next week we are going to do something a bit different. And to get started I thought I’d mention something that shows how uh…as a geologist, you need to know about more than just rocks and the structure of solid matter. Moving rocks, you may have heard about them. It’s quite a mystery.

Death valley is this desert plain, a dry lake bed in California surrounded by mountains and on the desert floor these huge rocks, some of them hundreds of pounds. And they move. They leave long trails behind them, tracks you might say as they move from one point to another. But nobody has been able to figure out how they are moving because no one has ever seen it happen.

Now there are a lot of theories, but all we know for sure is that people aren’t moving the rocks. There are no footprints, no tyre tracks and no heavy machinery like a bulldozer…uh, nothing was ever brought into move these heavy rocks. So what’s going on?

Theory NO.1 ---Wind. Some researchers think powerful uh…windstorms might move the rocks. Most of the rocks move in the same direction as the dominant wind pattern from southwest to northeast. But some, and this is interesting, move straight west while some zigzag or even move in large circles. Hmmm…How can that be? How about wind combined with rain? The ground of this desert is made of clay. It’s a desert, so it’s dry. But when there is the occasional rain, the clay ground becomes extremely slippery. It’s hard for anyone to stand on, walk on.

Some scientists theorized that perhaps when the ground is slippery the high winds can then move the rocks. There’s a problem with this theory. One team of scientists flooded an area of the desert with water , then try to establish how much wind force would be necessary to move the rocks. And get this: you need winds of at least five hundred miles an hour to move just the smallest rocks! And winds that strong have never been recorded. Ever! Not on this planet. So I think it’s safe to say that that issue’s been settled.

Here is another possibility – ice. It’s possible that rain on the desert floor could turn to thin sheets of ice when temperatures drop at night. So if rocks…uh become embedded in ice, uh … OK, could a piece of ice with rocks in it be pushed around by the wind? But there’s a problem with this theory, too. Rocks trapped in ice together would have moved together when the ice moved. But that doesn’t always happen. The rocks seem to take separate routes.

There are a few other theories. Maybe the ground vibrates, or maybe the ground itself is shifting, tilting. Maybe the rocks are moved by a magnetic force. But sadly all these ideas have been eliminated as possibilities. There’s just no evidence. I bet you are saying to yourself, “well, why don’t scientists just set up video cameras to record what actually happens?”

Thing is, this is a protected wilderness area. So by law that type of research isn’t allowed. Besides, in powerful windstorms, sensitive camera equipment would be destroyed. So why can’t researchers just live there for a while until they observe the rocks’ moving? Same reason. So where are we now? Well, right now we still don’t have any answers.

So all this leads back to my main point – you need to know about more than just rocks as geologists. The researchers study in moving rocks. Well, they combine their knowledge of rocks with knowledge of wind, ice and such…uh not successfully, not yet.

But you know, they wouldn’t even have been able to get started without um… earth science understanding – knowledge about wind, storms, you know, meteorology. You need to understand physics. So for several weeks like I said we’ll be addressing geology from a wider perspective. I guess that’s all for today. See you next time.