

Let's Talk Water – Dowsing or Water Witching

by Dr. Mike Strobel

Dowsing, or water witching, refers to searching for ground water using divining rods or other such tools. This practice has been around for centuries and many people firmly believe in its validity. Most ground-water hydrologists and other scientists completely dismiss it as a hoax and a scam. I feel it's worth exploring both the facts and fiction associated with dowsing.

The practice of dowsing usually involves the use of divining rods, which typically are two wooden sticks or metal rods bent in some fashion and held in close proximity to one another. Dowsers are also known to use pendulums for locating buried objects and ground water. The idea is that the diving rods or pendulum will be charged with static electricity from the user's body, and when an object of high electrical conductance is crossed, the rods or pendulum will react by pulling downward, crisscrossing each other, or in the case of the pendulum, begin rotating in a circular path.

Different dowsers believe certain objects work better than others, and this seems to depend on the individual. Some prefer wires, others like rods or pipes, some use only willow or other wooden instruments, and some like the pendulum method. Not everybody seems to have the ability to be a dowser, whether it's because of different electrostatic energy in some people or because some are more sensitive to these signals.

So, does it actually work? That is a matter of opinion and, to a certain degree, faith. There is strong evidence that humans can detect changes in an electromagnetic field. The human body generates electric pulses (our nervous system) and we seem to be cognizant of changes in electric current around us. We have all observed the ability for a person to generate static electricity (just walk across a carpeted floor in your socks and touch something metal to experience this). But how this energy and sensitivity can be harnessed to detect ground water may be a difficult bridge to cross.

Most ground water occurs in pore spaces in between sediments or in rock openings (see previous discussions on porosity and ground water). The top of an aquifer or the water table generally is a relatively flat, broad surface. To walk across a field and say that one place is better for finding water than another is unrealistic when the water underlies an entire area. The issue here is not so much where to drill, but rather how deep.

Many people have this idea of underground rivers and lakes. This really is not a valid concept except for areas of karst (caves), and even then not very common. Maybe some of the misconception comes from the reference to ground-water reservoirs, which really refer to aquifers (and again, these are usually saturated sediments and rocks). So, if someone feels they can tap into an underground river, in most cases they are quite mistaken.

However, ground water does tend to occur in fractures in bedrock. Sometimes, if the bedrock is very tight, such as a granite or basalt, unless you drill into fractures, you probably won't get much water, if any. However, the fractures can provide variable amounts of water to wells that intersect the fractures. This might be where people get the idea of underground rivers, because wells that don't intersect fractures might be dry whereas other wells adjacent to these dry wells might intersect fractures and produce water. People sometimes envision this as "hitting an underground river."

The question is whether dowzers can detect fractures or karst at depth. Various studies have demonstrated that some dowzers (I say "some" because like any profession, you have individuals that are successful and some that aren't) can detect buried pipelines, septic tanks, cables, and other such shallow objects. Some people would argue that this is because of the electromagnetic energy (conductivity) of the buried objects being felt by the dowser. Others would argue that any buried object lies below a surface that has been disturbed in the past (when the object was buried) and the dowser is just sensitive to small undulations or changes in the land surface above the object. I can't say for certain which accounts for the documented successes, but maybe it depends on the dowser.

Deeper variations in the geology, such as fractures or karst occurring hundreds (or more) feet below the surface is a different story. Most scientific equipment with very sensitive capabilities have difficulty identifying fractures and small amounts of karst at depth, and this becomes more difficult with increasing depths. Scientists use techniques such as seismic reflection and ground-penetrating radar to search for such features. The accuracy (and success for identifying smaller features) is limited and usually depends on the energy source applied (such as seismic waves or radar). These energy sources are much larger than the static electricity produced by a human body. And arguably, the capability for these sensitive instruments to detect and identify variations in the subsurface exceeds the capabilities of human senses. Many people feel that human senses are actually keener than we have measured and that there may be many aspects of the human mind and perceptions that we don't understand. Whether this transfers to an ability to detect variations in deep subsurface, I guess that remains debatable.

In summary, the validity of dowsing depends on the viewpoint of the individual. As I pointed out, there may be some evidence to support dowsing in shallow conditions, but it's highly questionable as to the accuracy for deeper features. In most places, ground water occurs as a planar surface and it makes no difference if one drills in one location verses 100 feet away. In the case of fractures and karst, most precise scientific instruments have difficulty identifying specific features at great depths, so it is questionable how much better human senses might be in locating these conditions. So, most scientists do not believe dowsing is valid. But there is much we don't understand about the world and about the human body (if we understood it all, us scientists would be out of jobs), so to discount dowsing entirely at this point would be premature and additional research would help answer many questions. I guess what one believes is a personal choice and a matter of faith in one system or the other.

If you have questions about water, please write to me in care of the Ely Times or at mstrobel@usgs.gov. Next week, we answer more of your questions.