Water dowsing correlation to magnetic fields and geological faults and dykes/dikes

This is a brief history of how I came to understand dowsing with steel L rods from the perspective of a geologist, a water well driller and a field mapping geologist using lithology as well as electrical and magnetic field changes. Tree and grass lineament patterns, existing geological maps, aeromagnetic maps, aerial photography and Google Earth were all also used to link dowsing to changes in magnetic fields of the Earth's rocks. Most of this work was done in the 1980's in South Africa.

As a qualified geologist, in South Africa, I first came into contact with dowsers back in 1982, first in locating water wells through my work in electrical resistivity surveys and then as a water well driller from 1983 onwards. I put in an enormous amount of field work to locate positions that I thought had an excellent chance of success. I then had dowsers come along to check on my positions. I, of course, with the arrogance of the newly minted geologist, dismissed their dowsing outright as nonsense. I was shown the forked stick and the right angle, or L rods favored by many dowsers. I really tried to keep an open mind, but could not see how dowsers could possibly find water with either a forked stick or a coat hanger wire. They also invariably told me that they were given this gift and usually that they had never sited a dry well. As a scientist, it just seemed like they were con artists. I began drilling water wells with my own pneumatic percussion drilling rig in a major drought that affected Southern Africa from 1982 to 1986.

I was drilling in granite, quartzite, dolomite and chert, sandstone and mudstone, including coal beds and andesite, norite, gabbro and syenite. It was easy to get water in the sandstones, shales, mudstones, quartzites, dolomites and chert, coal beds and even in andesitic lava. You could drill anywhere you liked and be relatively successful.

The non-weathered granite, was another story altogether. It was not at all porous. There was no water table as such and you were either lucky to get water in drilling through a narrow fracture or you were not. Sometimes you only had to move your drilling rig as little as 10 feet from a dry borehole to get water.

I had been down the deep gold mines of The Witwatersrand goldfields to more than a mile down, but that was on geological field trips and as they were tilted, faulted, fractured quartzites and conglomerates of about 3 billion years in age, I expected them to have plenty of associated underground water. The mines were hot and humid and perpetually damp with water oozing or trickling off every point in the man-made tunnels. Was this from natural seepage from the rock, the water introduced into the mine to cool it, or from the rock drilling machines to keep the tungsten carbide and diamond impregnated bits cool? Probably, they all contributed a little to the sweating rock face.

Being down a deep gold mine is exactly like being in a sauna. Your whole body is saturated in sweat which runs off you. I did not pay much attention to the water. I was looking at the geology and hoping to get out of the mine to the surface as soon as possible. What I did notice was at some points along the horizontal tunnels, water was coming through fractures in streams equivalent to a garden hose or two in volume at full

blast. These are the so called veins or underground streams I was later to hear about from all the earnest dowsers. They were neither veins of water as in capillaries nor streams. This was hard fractured quartzite. It was not a sponge zone of decomposed sandstone that one might call a water table. The water was moving out of the pressurized fractures of solid rock into the open tunnels we were walking along. The fractures carried most of the water. There were NO visible holes in the rock. This was my understanding of how things looked deep underground from actually being there. Dolomite, limestone and chalk formations are an exception, where you do get huge tunnels, underground rivers and gigantic water filled chambers and lakes.

So, back to looking for water in dry, non-weathered, occasionally fractured and intruded granite. This type of granite batholith is often called massive, because it is generally all the same in crystal chemistry, feldspar quartz and some micas and occasional amphiboles and magnetite.

If you were successful, in your location or siting of water wells, you might encounter a thin fracture of one to four inches at some depth that had some water, but most fractures were dry and did not have water. A fracture was composed of decomposed rock and was not necessary an actual hole or crevice in the rock. In drilling with pneumatic percussion drilling hammers and tungsten carbide bits, you are smashing the granite to pieces and getting out chips of rock, the size of your fingernail. When you intersected a fracture, often a pegmatite one, the crystal fragments that were blown out the borehole could be up to a couple of inches in size. These were of course just enlarged crystals of granite, composed of feldspar and quartz and some bigger flakes of micas, with weathering of the feldspar and trace amphiboles taking place to give small amounts of brownish yellow-green epidote. The white gray granite, now took on a brownish yellow weathered tinge, the same color you see when walking across granite outcrops, almost anywhere on the planet.

I was locating my own wells using electrical resistivity and then drilling those locations. Many of the other drillers were drilling randomly or calling in dowsers so that they could not be blamed if it was a dry well.

These were desperate times. There was no rainfall and the dams were drying up.
I began to understand though my electrical resistivity surveys and drilling that the fractures containing some water were usually located from 70 foot to 140 foot in depth and that the deeper I drilled into the granite, after that 140 feet, the more I was wasting my time and the client's money. My competition had fancy new high pressure, high cubic foot per minute Ingersoll Rand, Sullair and Atlas Copco compressors and they were just drilling to make money. They would, for example, drill 3 one thousand foot boreholes into solid granite and get no water on a half an acre and move on and repeat the exercise at the next location. It was called "drilling for metres", not water, as they were paid per meter.
I would be called in after the dry boreholes had been drilled, as my reputation of being generally successful expanded. In the built up neighborhoods where it was impossible to use magnetometers or electrical resistivity, I would get the clients to dig trenches across their property about 3 feet deep and look for larger crystals of quartz and feldspar,

hopefully giving us a pegmatite fault which would usually be more weathered and have a better chance of giving us more water than the non-weathered massive granite.

This worked relatively well and I began to get more jobs from clients who had already drilled two or three dry wells. I told them that they had to stop drilling into non-weathered granite and stop by 40 to 60 meters(130 to 200 feet) and then try somewhere else. Only weathered fractured granite had some chance of producing water. Drilling on the tops of decomposed granite hillsides, one was invariably more successful than drilling down next to the dry river beds on solid exposed granite. One could get 150 feet of deeply decomposed granite (DG) that looked just like river sand and was sold to the public as "river sand" for building purposes. These top of the hill sites often produced the most water from a well. I only ever drilled two artesian wells in granite. These wells kept flowing out the top for years afterwards. The one for my father in law is still flowing out the top after 30 years, having been drilled there in 1986. It is located in the suburb of Rivonia, Johannesburg where Nelson Mandela was put on trial for treason from 1963 to 1964. This well was located about halfway up the hill, with water being encountered at about 70 feet and artesian water at about 140 feet in depth. Throughout the good and bad rainfall years, it has never stopped flowing. I never expected to get artesian water in granite.

I was not at all impressed by the dowsers or the few geologists who had migrated into hydrogeology from field geology. I think we were all trained in the mythical water table at school and college that applies only to alluvial sediments and soft rock sandstones and mudstones. In reality, water in hard rock terrains can be uncorrelated in depth, potability and age, where you might find one well with a static water level at 60 feet. Another at 130 feet and another well that is actually artesian in granite. These wells all might be within 300 feet of each other with little topographic height difference. I call this the 'fracture water table.' Some fractures may contain arsenic, while others have none. Greater countrywide age dating of underground water has to be done if we are ever to understand our water resources and how quickly they are being replaced. I fear we are mining our water resources on a large scale, especially in the arid south west of the USA. Some of the underground water has not seen our upper atmosphere in more than a million years according to radiometric age dating techniques. Pumping this water out, from water wells, is simply mining it. Those fractures have not been replenished by rainfall in more than a million years.

The drillers in South Africa loved outside diviners and dowsers, not affiliated with their companies. As the drillers said, they were "drilling for metres, not water." They were being paid per meter to drill as quickly and as economically, for them, as possible. Many dowsers did not understand granite and thought that the deeper you drilled, the more likely you were to get water when in fact it was totally the opposite. The diviners wanted to save face in front of the client, so having selected a position kept telling the drillers to drill deeper. The dry borehole ended when the driller ran out of drill pipe or the next client was threatening to use another drilling company. The drillers loved this interplay between diviner and client as long as the drilling meters kept rolling in.

I began to notice that although dowsers were pretty bad in being successful in locating water in granite, they were pretty good at locating thin dolerite or diabase dykes with their divining wires. These dykes varied from 10 to 20 feet wide and went straight down into the earth with dips very close to 90 degrees. These dykes could not be seen at the surface, because of 10 to 20 foot of soil cover and they had not been mapped onto the 1:50 000 geological maps, being too small.
Drilling into the non-weathered diabase was as bad as drilling into the non-weathered granite. Diabase was similar in composition to gabbro, which is coarse crystalline basalt, containing feldspar, pyroxene and some olivine. It was darker than granite with more mafic minerals including minor amphiboles and magnetite. It was also a non-porous and non-permeable igneous hard rock that in itself was as dry as non-weathered granite. So the dowsers were picking up magnetic dykes/dikes but not water directly. So when I started drilling into solid diabase, I would simply move the drilling rig 10 feet at a time until we were in the contact zone of broken shattered granite. The diabase dyke had acted as a fissure type eruption and broken the granite. This was a permeable and porous zone and would often give good water well yields on each side of the diabase dyke. Sometimes the dyke was known as a 'tight dike' with the diabase magma "welding" the fracture closed, and doing it so tightly, that it remained impenetrable to water. These were not porous or permeable fractures, so although you could drill a borehole right on the contact zone and get chip samples of both granite and diabase, you never got any water.

One has to realize the conditions I was working in. The granite was almost 3 billion years old and the dikes varied from 200 million to 1.3 billion years in age. One would think that after all that time, the rock would be pretty weathered, but it was not and so was not generally permeable to underground water or porous to rainwater.
So I understood that dowsers or diviners, or for that matter inexperienced geologists, (using magnetometers) were not finding water but only changes in the local geology's magnetic field. But because there was a fracture or fault zone, they had a better chance when that fracture was weathered of getting water. So they attributed their dowsing success to locating water when in fact they were just locating water by default. You see, when rocks shear and melt in a fault zone and the crystals of feldspar, biotite, magnetite, quartz, amphibole, pyroxene and olivine align in the direction of that fault, a small magnetic field is introduced into the earth, which aligns perfectly with the dike or fault. The bigger and longer the dike, the stronger the magnetic field. Some dykes and faults are thousands of miles long.

So I now had a cheap magnetometer, as a dowsing tool, that I or anybody could use in the form of conventional steel L rods, which were not very sensitive and could not find water. So I designed a dowsing wire that was curled, like a spring, giving me more length of steel to intersect more magnetic flux lines, from the fault or dyke. A much stronger more accurate dowsing rod or wire was born and I could quickly find some positions to depth test, using Schlumberger's Electrical Resistivity surveying method. By increasing the spacing of my outer 2 electrodes in my electrical resistivity surveys, I could now check whether I had increasing current and at the same time decreasing resistance with depth, which usually implied I had a good chance of getting underground water. When

resistance climbed and current fell, I knew I had located solid non-weathered granite and there would be no point in drilling any deeper.

I began to show my clients how to dowse. Most people could dowse and come across the same fields as I did within minutes of being shown how to hold the dowsing wires correctly. This was true for kids from about 5 years of age and up. In fact they were usually better than the adults, having no preconceived ideas of why it should or should not work. Explaining to adults that they were not locating underground water, by dowsing, but only changes in magnetic fields, correlated to changes in geology left most of them dissatisfied.

Electrical resistivity surveys are time and labor intensive and it could take many days or weeks to complete a grid survey and select a position, depending on the property size. I often found people were not prepared to pay me the hundreds to thousands of dollars for the work concerned but were only too happy to pay a diviner or dowser to site water or drill dry wells costing thousands to tens of thousands of dollars.

By the way, a magnetometer was often used by geologists to locate water indirectly. It only finds changes in magnetic fields and does not detect underground water. Seismics or sound waves offer only a guide to the density of rocks, but do not guarantee water either. Ask the oil and gas industry on how many potential wells looked promising but ended up dry or not producing at all. Gravity surveys, only show different densities of rocks which might or might not produce water if you selected this geophysical method to locate your well.

Over the years, I have come to understand multiple changes in magnetic fields represented by my dowsing rod's multiple swings, while walking in a certain direction, actually represent fault and dike swarms. These and intersecting fields can translate into a higher than average chance of improving the likelihood for underground water. There is no guarantee of finding water, depth to water, water quantity, age of water, salinity or anything else by dowsing. Dowsing with steel L rods is simply a large scale confirmation of magnetic field changes that you hope will show a fractured section of the earth, which you pray will give you a well with decent water, when you drill a borehole at that location.

You also do not need two dowsing wires to find a magnetic field change, you only need one. Dowsers tend to stop walking when and where their two wires cross in their left and right hands. That is only half the story. The wires do not cross, they continue to circumscribe 360 degree circles in your hands, if you let them, as a compass needle keeps turning following the strongest magnetic field. Where the dowsing rod spins in a 360 circle that is where you have a good intersection of two magnetic fields and a good chance of finding water. Two wires will always cross in front of you for a single field change(a single fault or dyke), but to get them to rotate in a complete 360 degree circle WHILE STANDING ALMOST STILL is a true magnetic field intersection. This is simply your dowsing rod trying to align with two different magnetic fields and being pulled one way and then another. It does not mean you have located water however, just

good changes in the magnetic fields of the local rock. You stand a better chance of getting water in hard weathered igneous rocks in such a location than in the massive, plutonic, non-weathered rocks nearby.

Dowsing would be totally useless for locating a horizontal plutonic sill with a good magnetic field. Sills are similar to horizontal flood basalts, when there is no change in magnetic field while walking across a non-fractured or intruded surface. If the sill does not change in thickness or magnetic intensity, one might find a weathered layer above and below this sill containing plenty of underground water and never detect it by dowsing, because dowsing is more attuned to picking up magnetic fields cutting across vertical or near vertical geology changes, than horizontal changes in rock type with depth. The magnetic field effect becomes muted with depth. Much as a very strong earthquake at 650 kilometers in depth is hardly detected by people, even though instruments pick it up. Strong earthquakes at 10 to 35 kilometers in depth kill tens to hundreds of thousands of people by their local shockwaves.

In summary, dowsing only locates magnetic fields and not water.
Magnetic fields represent breaks in the earth's geology and a higher likelihood of finding water in that fractured zone.
The more you dowse and observe, the better you will get.

There are other dowsing methods. There are many con artists. Keep your eyes and ears wide open and your check book in your pocket.
Dowsing with steel L rods is not a magic trick and has limitations for locating water.
It is a great deal of fun when first used, as you can with a little help from a curled piece of wire, feel magnetic fields. It is a sort of "sixth sense." Many dowsers or diviners talk about ley lines. I think most of these are just plain old Earth magnetic fields associated with faults and dikes. I certainly attribute no spiritual or gift sense to ley line talk. The only bad Karma, I can attribute to an extra big ley line such as the San Andreas Fault, is the bad karma you will get if you build your house on it.

If you find a large quartz fracture in granite by dowsing and that fracture contains gold, all that can be said is that you successfully found a good change in the magnetic field of the granite and not that you successfully dowsed for gold. If however, every fracture you dowse around the world contains gold, then I too will be coming to you for dowsing lessons and you too can collect a Nobel Prize.

Lastly there are magnetic field maps of the whole world showing correlation to faults and dykes, for the very big ones at least. Those large scale maps can be obtained for a few dollars or online from your local geological survey.

I have done no pendulum dowsing and very little forked stick (Piezoelectricity?) and density dowsing. Density dowsing from what I have seen is detecting changes in the density of rocks by holding a bottle of water, a rock or a brick and walking with it. When it tilts or falls over through slight changes in gravity, you have again found differences in the density of rocks which may or may not help you find water. Gravity surveys are used

successfully to find batholiths and mountain roots and thicknesses of ore bodies and the fine shape of the spheroid Earth.

I look forward to listening to your dowsing experiences and hope to answer as many questions as I can.

Come dowse with me.

Thank you
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June 2016.