

DOWSING, AN APPLIED SCIENCE? TWO EXPERIMENTS INTO THE DOWSING PHENOMENON

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Introduction

The first occasion that the author saw the dowsing technique in use was in the early 1970s. A neighbour had engaged a local handyman to lay the pipes connecting his property to a main sewerage line that had recently been laid to the village. Before work got underway it was found necessary to find the location and route of an existing storm water drain for the premises. As no one was able to provide the required information the handyman asked if anybody could provide him with two pieces of stiff wire. Eventually two welding rods were found and handed to him, these he then bent into L shapes and within 20 seconds both the location and the direction of the drain had been plotted. Careful excavation revealed an earthenware pipe buried at a depth of between 18 inches and two feet, and directly beneath the spot where the rods had crossed over. When asked if he could explain how it worked he replied that he had no idea - all that he knew was that it works and that it works for most people. With that he handed me the two rods and invited me to try my hand.

Holding the rods like a pair of six-shooters, which I was told was the appropriate manner, I did a re-run over the site, and much to my surprise came up with the same results as the handyman. As an additional check I returned to my own garden through which I had laid pipes some months earlier. Here again the alignment of the pipes could be followed precisely. I also found that I was able to plot the outline of the now redundant septic tank.

Up to this point I had been as sceptical as anyone about the subject of dowsing, but from these results it was now beginning to appear that there must be some logical explanation for this phenomenon. In one of the many practice sessions I carried out in the months that followed I found that a small culvert beneath the concrete floor of the cellar of my home could be detected by dowsing not only in the cellar but also in the two rooms and the attic immediately above. The floor of the attic is at a height of about 7.5m above the cellar floor. The significance of this particular observation came to light in later experiments.

In 1977 there was a programme on BBC TV entitled 'Now You See It, Now You Don't', presented by Michael Rod. In addition to the more usual demonstrations such as locating buried water pipes and drains, two experiments were shown which were later found to be repeatable. The first demonstrated that it was possible to detect anomalies that had been created with a device referred to as a Terra Hertz Generator. This would appear to have been an infra-red light

source that had been fitted with a baffle to provide a narrow vertical beam of radiation. By aiming this device across a piece of grassland and switching on for a few seconds, a detectable dowsing anomaly could be created where none had existed previously. The second was a demonstration of how a dowser could be screened from dowsing anomalies when wearing an overall that had been made from cooking foil. These two experiments along with the observations from the original practise sessions led to further experiments all of which have shown that dowsing can be demonstrated under laboratory conditions, and eventually led to a scientifically-based hypothesis.

The experiments and text that follow cover the salient points and observations from the original experiments. They can be carried out in and around an average family home and have also been used for group presentations, so anyone who has found that they can dowse (about eight in ten people who try) should have no difficulty in repeating them.

The dowsing rods are made of thick coat hanger wire about 45cm long with a right angle bend 15cm from one end. In use the rods are held by their shorter arms so that the longer arms point away from the dowser, in a similar manner to holding a pair of pistols.

Experiment 1

In this experiment instead of dowsing on a lawn or on open grassland, a piece of rubber-backed carpet was used as a substitute. In this way the experiment could take place indoors, so permitting an additional verification check in both experiments.

The piece of carpet is laid across a convenient clear space that is known to be free of natural dowsing anomalies, preferably near the centre of a ground floor room where there is a similar clear space in the first floor room immediately above. Between 20 and 30cc of cold tap water is then dispensed along the centre line of the carpet (a discarded detergent bottle is ideal for this). If the carpet is now dowsed it will be found that there is no dowsing reaction.

The carpet is now exposed to the radiation from an infra-red lamp or hot air from an electric hairdryer for about 5 seconds. On dowsing again it should be possible to detect a strong reaction over the centre line of the carpet. There should also be an equally strong reaction in the first floor room immediately above the spot where the carpet is sited.

If the carpet is now covered with a piece of aluminium

cooking foil and the first floor room is dowsed again, it will be found that the dowsing reaction will have disappeared.

Conclusions and observations:

This experiment should confirm that:

- A. A dowsing anomaly can be created by applying heat to moisture so initiating the evaporation process (see endnote 1).
- B. That aluminium foil is effective in screening a dowser from a dowsing anomaly.
- C. The aluminium foil being non-ferrous and non-magnetic shows dowsing anomalies to be electrical in nature rather than magnetic.
- D. The fact that the anomaly could be detected several metres above the source of evaporation provides supportive evidence for the electrical nature of the dowsing anomaly.

In the light of these two observations Experiment 2 was devised as a validation test to confirm the electrical nature of dowsing anomalies.

Experiment 2

This experiment is best carried out in the open on a lawn or any piece of open ground known to be free of any dowsing anomalies.

Three bamboo canes will be required, two about seven feet long for the uprights and one four foot long for the cross piece (Figure 24).

The canes are made up to form a bridge with sufficient height and width to allow the dowser to pass beneath without touching them.

A length of copper wire is then hung along the cross piece, so that the ends of the wire can hang down almost to the ground on each side (a length of chain is shown in the photo for clarity).

If the dowser now walks beneath the bridge with the rods in the search position, there should be a dowsing reaction on passing under the cross piece.

Conclusion to Experiment 2

The wire hanging along the cross piece and down on each side of the bridge has in effect short-circuited the atmospheric electric field (see endnote 2), beneath the cross piece, and thus creating a detectable dowsing anomaly thereby confirming its electrical nature, also showing that the dowser was reacting to the depletion



Figure 24: Photograph of the author demonstrating the equipment used for Experiment 2.

of the atmospheric electric field beneath the cross piece.

In practice it has been found that dowsing surveys can be carried out at any time of the day, night, or year without the results being influenced by extremes in weather conditions, or in the wide variations in humidity or temperature likely to be encountered. Indeed, dowsing surveys have been successfully undertaken during periods of prolonged frost when the temperature had not risen above -5°C for two weeks or more. From this, and taking into consideration the extremely small quantity of water and heat required in the above experiment to initiate and maintain a dowsing anomaly, it must be concluded that naturally-occurring dowsing anomalies must come about as a result of a concentration of moisture in the subsurface, absorbing heat derived from some low-level perpetual and stable energy source that is independent of any atmospheric influence. The only natural energy source that would fulfil these requirements would appear to be that resulting from geothermal leakage.



A—TWIG. B—TRENCH.

Figure 25: 'The wizards ... seek for veins with a divining rod shaped like a fork; but its shape makes no difference in the matter - it might be straight or of some other form - for it is not the form of the twig that matters, but the wizard's incantations which it would not become me to repeat, neither do I wish to do so' (Agricola 1556).

In all the experiments involving the evaporation process, it was noted that irrespective of any air currents that there may have been, the dowsing reactions always took place directly above the source of the evaporation, even when doors were opened to allow a strong draught to blow through the ground floor rooms. This would suggest that dowsing anomalies must occur as a result of some factor in the evaporation process other than, and in addition to, the escape of molecules of water vapour from the body of liquid (see endnote 1).

Dowsing anomalies have been shown to occur as a result of the absorption of heat by moisture, and also to be electrical in nature. So it would appear that at some point during the evaporation process, most likely

at the instant that the water molecules escape to the atmosphere, negatively charged particles (electrons) (see endnote 3) could be released from the water molecules. These would then be captured by the overpowering attraction of the positively charged electrosphere being exerted through the atmospheric electric field. This would cause a depletion in the atmospheric electric field proportional to the level of evaporation taking place over that particular spot.

From this, the dowsing process could be visualised as a series electrical circuit, with the geothermally heated moisture in the subsurface functioning as a cathode producing negatively charged particles, which are then drawn off by the positively charged but highly resistive atmospheric electrical field to the electrosphere serving

as the anode. The dowser, being in series with the electrosphere, the atmosphere and Earth, would perform the function of a meter or null indicator by reacting to any variations in the potential difference in the atmospheric field as he moves across the ground. The dowsing rods are of course mechanical amplifiers and indicators of the minute muscular reactions that take place in the dowser's arms.

So we may conclude that naturally-occurring dowsing anomalies develop as a result of the leakage of geothermal heat to the atmosphere by way of the differentials in moisture content and porosity in the subsurface, these cause corresponding variations in the potential difference of the overlying atmospheric electric field. It is these variations that dowsers are able to detect as they pass through them. This hypothesis can explain a number of the less extravagant claims that have been made for dowsing.

Some suggested explanations

Prospecting for water (Holmes 1978, 386-9)

There are two different sources that feature in dowsing surveys for water. The first of these occurs in non-rocky areas where the superficial flow of water through the subsoil accumulates in the depressions and subterranean water courses over impervious layers. The dowsing reaction in this case takes place over the area where the vertical penetration of moisture below the surface is deepest. These subterranean water courses are generally part of the natural drainage system of an area and are often found to serve as subsurface feeders to small streams. When prospecting it is sometimes possible to find an additional convergent water course by dowsing along both sides and parallel to the first stream. To sink a well on the confluence of two such water courses is likely to ensure a more abundant supply of water.

The second source of water occurs in areas where soil gives way to rock. Downward infiltration of water takes place into the bedrock where it can accumulate in the faults, fissures and aquifers. In this case also, it is the vertical penetration of moisture below the surface and its ability to conduct geothermal heat to the atmosphere that is responsible for the dowsing anomaly.

Prospecting for minerals

Mineral veins are found in those geological faults and fissures that during some bygone geological age served as vents for the ascending super-rich brine solutions from which the veins of minerals and metallic ore have been deposited (Holmes 1978, 246-8). Here again, it is the vertical penetration of the moisture below the surface that is responsible for the dowsing anomaly. From this we may also conclude that although it may be possible to locate mineral veins by dowsing (Agricola 1556 and see Figure 25), it will not indicate which of the mineral or metallic ores have been found.

Archaeological Remains

The practice of dowsing could make a useful addition to the list of remote sensing techniques available to both archaeologists and civil engineers for carrying out subsurface site investigations by making it possible for reasonably accurate ground plans to be drawn up in advance of an excavation or construction work.

The dowsing anomalies associated with buried foundations of demolished buildings differ slightly from the general rule in that they are not wholly dependent on an excess of moisture to produce the anomaly, but on the higher thermal conductivity brought about by the higher density and lower porosity of the material of the remaining foundations, so providing a more efficient path for the geothermal heat to the surface and atmosphere.

'Imprints'

A dowser may occasionally detect a series of anomalies and from them produce a ground plan of a building, only to find on excavation that there are no features present and that the subsoil is undisturbed and natural. This absence of subsurface remains indicate that the anomaly is an 'imprint' left by a surface-mounted building and is caused by the compacting of the subsoil due to the weight of the building that had once occupied the site. This would have lowered the porosity and raised the thermal conductivity of the load-bearing subsoil beneath the building in comparison to the less densely packed subsoil of the adjacent ground.

An 'imprint' can be also created by any ground or floor-covering that is capable of preventing the evaporation of rising dampness into free air from taking place. A good example of this type of imprint is mentioned in "Dowsing and Church Archaeology" (Bailey *et al.* 1983, 1985 and 1988). At St. Mary's Ponteland, dowsers traced a rectangular feature with a line in front in the chancel area. Some time later, plans were discovered in the Northumberland Record Office showing that the dowser's traces corresponded exactly to a wooden altar platform and steps that had been installed in 1885 and removed in 1972.

Rising dampness reaching the surface of the uncovered stone floor would be free to evaporate. The subsoil beneath would be unsaturated with pellicular water adhering to the grains of subsoil, and the intergranular pore space filled with air.

In the case of the covered area of stone floor, during the period of time that the altar platform was in use, it would in all probability have been carpeted to reduce the noise level. The resulting lack of adequate ventilation would have impeded evaporation from the surface of the stone floor, which would have led to a build-up of moisture in the air space beneath the platform, the stone flags of the floor, and also the underlying subsoil. This build-up of additional moisture

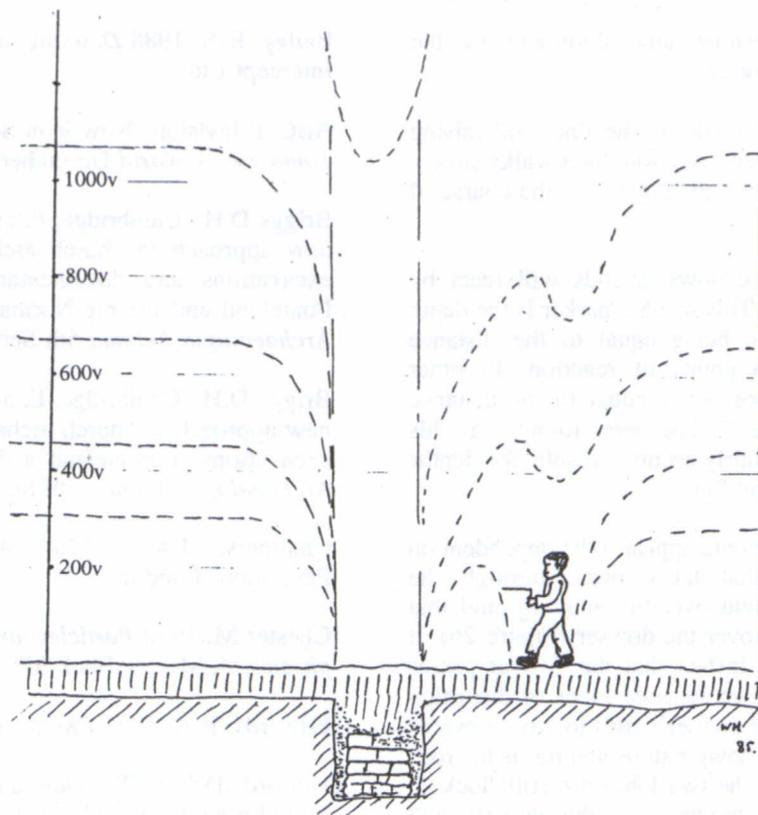


Figure 26: Conjectural sketch of the distortion in the Atmospheric Electric Field caused by a dowsing anomaly (in this case an ancient construction trench cut into undisturbed subsoil) and by the person standing nearby.

in the subsoil would most likely have been present in the intergranular pore space as water, so reducing the voids, and would have been almost stagnant, apart from the possibility of a small lateral movement of excess to adjacent, less moist areas.

The presence of water in the intergranular pore space could have induced settlement within the structure of the subsoil, which over a period of eighty-seven years could be quite significant. Settlement would mean closer packing of the granules, resulting in fewer voids, lower porosity and higher thermal conductivity, and this would be without taking into account any chemical or other action that the presence of the extra moisture in the subsoil may have initiated (Holmes 1978, 386-7).

Following the removal of the altar platform, the differences in porosity and thermal conductivity between what had been the covered floor and the uncovered floor would have become fixed and permanent, along with the dowsing anomaly.

The altar platform was removed in 1972, and I have been informed that 'the signal was still as strong some ten years after the original experiments which took place in 1982'.

Service trenches and ditches

Dowsing techniques are often used in the location and plotting of such buried items of the utility services as water pipes, drain culverts and cable ducts. The act of opening a trench or ditch across a piece of comparatively undisturbed land will have the effect of modifying the drainage pattern of the ground along both sides of the excavation, by providing the subsurface moisture from a fairly wide area with a channel or sump in which to accumulate.

On completion, the trench would be detectable by dowsing due mainly to the seepage of moisture from the side walls draining to the base of the trench and on the difference in density between the backfill and the adjacent ground forming the side walls of the trench.

It could also be concluded from this that it is not the pipes, drains, culverts or ducts nor their contents that cause the dowsing anomalies, but the trenches that were excavated to accommodate them.

Depth measurements: 'The Bishops Rule'

When carrying out a dowsing survey, a dowser often needs to know how deep the origin of the anomaly is beneath the surface. This can be quickly determined by

the following method:

1. Establish the position and alignment of the anomaly with markers.
2. The dowser then stands on the line, and raising the rods to the search position, then walks slowly away from - and at right angles to - the course of the anomaly.
3. At some point the dowsing rods will react by turning outwards. This second marker is the depth marker; the depth being equal to the distance between the two points of reaction. In other words, the distance out is equal to the distance down. In practice, it has been found that this method can give fairly accurate results for depths from 2.5m to about 7m.

The process involved would appear to be dependent on a switching action that takes place through the atmospheric electric field over the anomaly and that there will also be one over the dowser (Figure 26). It would appear that the instant that the dowser passes over an anomaly, the two separate lobes of distortion will merge, causing the dowser's rods to cross towards one another. When the dowser stops and resets the rods to the search position, the two lobes are still 'locked' on to him. By then moving on, the dowser will increase the length of the electrical path and resistance between the subsurface origin of the anomaly and the origin of the atmospheric electric field. At a certain critical point, the electrical resistance by way of the dowser will just exceed that by the most direct route to ground, causing in the same instant the two lobes of distortion to separate, the atmospheric electric field to switch back to the subsurface origin of the anomaly, and the dowser's rods to open outwards.

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Endnotes

- 1 Evaporation has been described as being 'the escape of the faster-moving molecules from the free surface of a body of liquid, and provided that the surface of the liquid is not confined to a closed vessel but is in contact with free air, the vapour made up of escaped molecules will be carried off by air currents and their place will be taken by other molecules from the liquid' (Edwards 1970).
- 2 The Earth's atmosphere can be likened to a huge electrical storage capacitor, with the Earth having a negative polarity, and the air above having a positive polarity. The difference in potential between the top of the atmospheric layer and the Earth's surface is about 350,000 volts which is spread throughout the thickness of the Earth's atmosphere. These voltage layers encircle the Earth in a similar fashion to the layers of an onion, and are almost parallel to the Earth's surface except for the lower layers which are

liable to be distorted by trees, buildings or any other objects that may be standing proud of ground level.

The space between the layers separated by one volt is about 5mm at sea level, gradually increasing to 10cm per volt at an altitude of 7,000m. From a point above open ground equal to the height of the average man the potential difference measured to ground would be about 300 volts. In practice the current would not be felt because it is too small to sense. These notes are from Holford (1978, sketch on first page); Uman (1971) and Chalmers (1967).

3 The mechanism by which this may take place is as follows (from Chester 1980 and Kitchen 1997):

- a) It is envisaged that during that phase of the water cycle between precipitation as rain, and the eventual evaporation back to water vapour, two processes would need to take place. The hydrogen atoms in the water molecules would each need to gain an extra electron. This will give the hydrogen atoms a net negative electrical charge making them Negative Hydrogen Ions symbolised as H^- , and would be the result of a chemical process brought about by contact with the Earth's land surface and ground waters. The extra electrons will only be weakly attached to the atoms, so will be easily ionised back to neutral hydrogen.
- b) The absorption of geothermal heat by groundwater will initiate the evaporation process and also sustain thermal agitation within the water molecules. So, from this it would appear that the upwards movement of geothermal heat, and the resulting chain reaction of the extra electrons in the water molecules would bring about the completion of the evaporation process on reaching the surface and atmosphere, where the positively charged electrosphere operating through the atmospheric electric field would then attract and capture any free electrons that were on or near the surface, leaving the water molecules free to be either carried off by air currents, or to be re-absorbed back into the ground.

Additional Bibliography

The following references, not referred to in the text, are included for interest. Hanson's review (1982) mentions over 140 books and articles about dowsing, none of which explained how it worked. This showed the present author that he was on completely fresh ground as far as the line of research was concerned.

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