

Historical Note/

## Water Witching and Dowsing<sup>1</sup>

by David Deming<sup>2</sup>

### Introduction

Water witching is a form of divination that uses a forked stick, rod, or pendulum to locate underground water. Divination is the practice of foretelling the future by various natural or psychological techniques; it is found in all civilizations, ancient and modern, primitive and sophisticated, in all parts of the world. In the United States, the practice of locating underground water through divination is most commonly called water witching; the term "dowsing" is more common in England.

Although various instruments can be used, the classic method is to employ a forked stick. The stick is commonly cut from peach, willow, hazel, or witch hazel trees. One fork of the stick is held in each hand with the palms pointing upward. The bottom or butt of the "Y" is pointed upward at an angle of about 45 degrees. A typical description of the procedure was provided by Vogt and Hyman (1959, p. 2):

Jeff Green seems like a man in a trance. His head is bent forward, and his eyes are focused upon the junction of the two forks of the peach limb that he holds in his hands. He clutches one fork of the branch in each hand in such a way that the junction points almost straight up in the air. For the past half-hour he has been pacing back and forth over Frank Brown's pasture. Suddenly, the peach limb quivers, and, as Jeff moves forward a few paces, it twists in his hands and points downward with such violence that the bark peels off. Jeff looks up and smiles at Frank Brown. "Dig here," he says, "and you'll find the water you need."

The origin of water witching is lost in antiquity. Water witches are fond of referring to Moses as the first water witch, based on the biblical verse Numbers 20:11:

And Moses lifted up his hand, and with his rod he smote the rock twice: and the water came out abundantly, and the congregation drank, and their beasts also.

Notably, references to water witching are absent from Greek and Roman manuscripts. The first description of the



Figure 1. Cecil Bratton of Keota, Oklahoma, demonstrates his water witching technique (Copyright 2000, The Oklahoma Publishing Co.).

practice appeared in the famous book on ores and mining, *De Re Metallica*, published in 1556 by Georgius Agricola (1494–1555). Agricola described how miners would search for mineral veins, using a technique virtually identical to that of the modern water witch. The birthplace of the modern divining rod was in the mining districts of Germany, probably in the Harz Mountains. German miners were imported into England during the reign of Queen Elizabeth (1558–1603), and brought the practice of the divining rod with them. By the end of the 17th century, divination with the rod had spread throughout Europe.

The widespread use of the divining rod for the location of underground water was first popularized by the French Baroness de Beausoleil. The baroness and her husband were primarily employed in developing mines for the French government. In her book, *La Restitution de Pluton*,

<sup>1</sup>This article is reprinted from *Introduction to Hydrogeology* by David Deming, with permission of McGraw-Hill Companies © 2001

<sup>2</sup>Ground Water History Editor; School of Geology and Geophysics, University of Oklahoma, Norman, Oklahoma; ddeming@ou.edu

published in 1640, the baroness recommended the use of the divining rod for locating springs. The baron and his wife were later imprisoned on charges of sorcery and died around 1645.

European exploration and colonization spread the practice of water witching throughout the world. In the United States, there are few publications relating to water witching prior to the year 1800. The first American academic paper on the subject was published in the *American Journal of Science* in 1821 by Reverend Ralph Emerson ("On the Divining Rod, with Reference to the Use of It in Exploring for Springs of Water"). Emerson reported on the use of divining rods for locating underground water in the states of New York and New Hampshire, and concluded that he was "totally skeptical of their efficacy, till convinced by my own senses." In 1826, the *American Journal of Science* published an article titled simply "The Divining Rod." Unlike Emerson, the anonymous author concluded that the "pretensions of diviners are worthless."

In 1917, the U.S. Geological Survey published *The Divining Rod: A History of Water Witching* by Arthur J. Ellis as Water-Supply Paper 416. In an introduction to the paper, O.E. Meinzer related that the U.S. Geological Survey received a large number of inquiries each year on the subject of water witching, as well as persistent demands that it be made a subject of investigation. Meinzer goes on to explain that Water-Supply Paper 416 was written "merely to furnish a reply to the numerous inquiries that are continually being received from all parts of the country." The pamphlet contains an exhaustive bibliography listing 559 papers and books on the subject that were published from 1532 through 1916.

In 1959, Harvard anthropologist Evon Z. Vogt and University of Oregon psychologist Ray Hyman published a study of water witching in the United States, titled *Witching U.S.A.* (Vogt and Hyman 1959). As part of this study, they sent questionnaires to a representative sampling of county agricultural extension agents throughout the United States. They found that 56% of the respondents expressed outright disbelief in the validity of water witching. However, 20% admitted to a belief in the efficacy of the practice, and another 24% indicated they were open-minded on the issue. Vogt and Hyman (1959) estimated that there were 25,000 water witches plying their trade in the United States. In 1998, the magazine *Popular Mechanics* reported that the American Society of Dowsers contained about 4200 members (Wilson 1998).

From the beginning, water witching has been a subject of great controversy. In *De Re Metallica* (1556), Agricola wrote:

There are many great contentions between miners concerning the forked twig, for some say that it is of the greatest use in discovering veins, and others deny it.

In general, water witching is not now, nor has it ever been, accepted by the mainstream of science. Vogt and Hyman (1959) described it as an "outcast" opposed by geologists, water engineers, government officials, and other scientists for hundreds of years. Oscar E. Meinzer (1876–1948), the "father of ground water geology" in the

United States, did not mince words in his assessment of the practice. In U.S. Geological Survey Water-Supply Paper 416 (Ellis 1917, p. 5), Meinzer wrote:

It is doubtful whether so much investigation and discussion have been bestowed on any subject with such absolute lack of positive results. It is difficult to see how for practical purposes the entire matter could be more thoroughly discredited, and it should be obvious to everyone that further tests by the United States Geological Survey of this so-called "witching" for water, oil, or other minerals would be a misuse of public funds.

In 1977, the U.S. Geological Survey published a 15-page pamphlet titled *Water Dowsing*, which indicated that inquiries concerning the subject had continued, undiminished by Meinzer's rhetoric. Although toned down from Meinzer's bluntness, the conclusion 60 years later was the same: Further testing of water witching is a waste of time and money.

Water witches and dowsers generally have the false and persistent notion that underground water exists in veins that may vary in magnitude from the diameter of a pencil to virtual underground rivers. Although this may be the case for areas underlain by crystalline bedrock or in karst terrains, most ground water is found in the interstitial pores of sediments and rocks. Vogt and Hyman (1959, p. 32) concluded that conceptions of most water witches are derived from the perpetuation of an ancient rural folklore.

Successful case histories are often offered as proof that water witching works. However, in many areas, it is difficult to drill and not find water. Dowsers may also be responding, consciously or unconsciously, to other cues. The landscape itself often provides clues to the presence of underground water. The water table is apt to be closer to the surface in valleys, compared to hills. In arid regions, the presence of water-loving plants may indicate a shallow water table. The presence of springs, seeps, swamps, or lakes is a sure sign of ground water at the surface, although no guarantee that it exists in either sufficient quality or quantity.

In 1971, R.A. Foulkes reported on the results of a controlled series of experiments organized by the British Army and Ministry of Defense. Dowsers were asked to locate a series of buried objects simulating the presence of mines. Tests were also conducted to determine if dowsers could locate buried pipes through which water was running. The results of the tests were subjected to statistical analysis and reported in the journal *Nature* (Foulkes 1971). Foulkes (1971) reported that the results of all trials was "frankly disappointing," concluding "there is no real evidence of any dowsing ability which could produce results better than chance or guessing."

The subject refuses, however, to die. In 1979, a report in the *New Scientist* claimed that Russian scientists had successfully deployed and tested dowsing techniques to locate metal ore deposits (Williamson 1979). The same year that Foulkes had obtained negative results in England, two scientists from the Water Research Laboratory at Utah State University had positive results from a different experiment (Utah Water Research Laboratory Progress Report 78-1, p. 57, 1971). Researchers Duane Chadwick and Larry

Jensen asked 150 novice dowsers chosen from staff and students at Utah State University to walk one-at-a-time along a test path chosen for the absence of visual features that could provide subconscious cues. Each dowser was given 30 wooden blocks, and asked to drop a block at locations where a "dowsing reaction" was obtained. It was found that there was a significant clustering of the locations in which blocks had been dropped by the test subjects. Dowsers tended to obtain more frequent reactions along path segments where changes in the gradient of the Earth's magnetic field were more pronounced.

In 1995, the *Journal of Scientific Exploration* published the results of a 10-year study that had been financed by the German government (Betz 1995). The research was designed to test if there were cheap and reliable ways of finding drinking-water supplies in Third World countries. Over a 10-year period, researchers analyzed the successes and failures of dowsers in locating water in arid regions of Sri Lanka, Zaire, Kenya, Namibia, and Yemen. They found that the dowser's success far exceeded chance probabilities. In Sri Lanka, 691 wells drilled at locations recommended by dowsers were 96% successful. The chances of finding water in Sri Lanka by random drilling are 30% to 50%. In an attempt to duplicate the work of Foulkes (1971), the German team tested to see if dowsers could locate buried pipes containing running water. Their results were the same as Foulkes (1971): although the dowsers could locate water-well sites, they could not find the location of buried pipes. German physicist Hans-Dieter Betz theorized that dowsers respond to subtle electromagnetic gradients that may result when water flowing through bedrock fractures changes its electrical properties.

Is water witching pure bunk, or do humans have the ability to respond to subtle natural cues in ways in which we do not yet fully understand? It seems likely that the answer shall remain controversial into the indefinite future. Agricola (1556) perhaps was wise when he said:

Since this matter remains in dispute and causes much dissension amongst miners, I consider it ought to be examined on its own merits.

Vogt and Hyman (1959) have pointed out that the scientific questions aside, water witching is fascinating as a cultural phenomenon. Water witching is not a remnant of our primitive origins, nor a magical practice borrowed from nonliterate societies. It was wholly invented in 16th-century Europe, and has come down to us virtually unchanged from its original form. Why does the practice not only survive but flourish in a technological society that has never approved of it?

When we understand the answer to this question, perhaps we shall obtain more insight into human nature.

## For Further Reading

- Agricola, G. 1556. *De Re Metallica*. Translated from the first Latin edition by H. C. Hoover and L. H. Hoover. New York, Dover Publications (1950).
- Betz, H.-D. 1995. Unconventional water detection: Field test of the dowsing technique in dry zones. *Journal of Scientific Exploration* 9, nos. 1-2: 1-159.
- Ellis, A.J. 1917. The divining rod, a history of water witching. U.S. Geological Survey Water-Supply Paper 416.
- Foulkes, R.A. 1971. Dowsing experiments. *Nature* 229, 163-168.
- Mills, A. 1994. The dowsing rod: A most contentious instrument. *Geology Today* 4, no. 10: 157-159.
- U.S. Geological Survey. 1977. *Water Dowsing*.
- Vogt, E.Z., and R. Hyman. 1959. *Water Witching U.S.A.* Chicago: University of Chicago Press.
- Williamson, T. 1979. Dowsing achieves new credence. *New Scientist* 81, no. 1141: 371-373.
- Williamson, T. 1987. A sense of direction for dowsers? *New Scientist* 113, no. 1552: 40-43.
- Wilson, J. 1998. Dowsing data defy the skeptics. *Popular Mechanics* 175, no. 12: 46.