



Aquatometer

#### *In Brief:*

*Irrigation water in many areas is difficult to obtain, if not impossible. Any method which will aid turf care professionals in their search for irrigation water, as well as a supply for other uses can prove a valuable asset. WTT asked the president of Accurate Water Location, George L. Jamieson, to present his experiences with a new water magnetometer which he has used successfully, and which he subsequently developed as a service available to both industry and individuals.*

## New Development Helps Spot Underground Sources

# Locate Water Supply

By George L. Jamieson

President, Accurate Water Location, Inc.

**B**ELIEVE it or not, there is a way to locate water accurately!

We have been so long accustomed to the uncertainties in finding reliable water supplies that most builders, grounds superintendants and construction engineers still despair when the problem comes up.

For years there has been this dilemma: where to drill to obtain the most water at the shallowest depth? And for centuries—all types of artistic witchcraft have surrounded this essential search of man. Willow and peach twigs, divining rods, coat hangers, witches and just plain

hunch have called the tune. And those paying the piper have lost countless dollars (and substantially more sleep!) in drilling dry wells.

Clearly, drilling a well has many hazards and can be an expensive gamble. Knowledge of an area from drilling nearby wells or from geologic surveys or hydrologists has often been helpful. But despite this help, the gamble is still high, because of the complexity of pin-pointing heavy water incidence in earth fractures deep—or not so deep—beneath the surface of the ground.

Today, however, proven help

is available. A new water magnetometer has performed so well to date that several people throughout the country have become franchises on this instrument. We call it the "Aquatometer."

#### **Predicts Flow Rate**

There is no magic in locating water in many water-rich areas of the United States. But in others—in my own area of New York State, for example—it is quite a trick to do three things: locate water, predict its depth and determine its rate of flow. The new "Aquatometer" we

have been using, primarily in the Northeastern States, has an enviable record of success. The people served by Accurate Water Location and its new instrument tell us we have taken the witch out of well-witching, the doubt out of dowsing.

Where we have been most successful with this instrument is in areas where costly, waterless wells have been drilled — in short, where water is difficult to find.

The instrument has an intriguing history. Basically, it is a mining instrument although when the time came for Kenyon Instrument, the inventors of the device, to market it they found that there was no one who was interested in it for prospecting. The instrument was costly, and if anyone found minerals with it there wasn't much market for the minerals. Through experimentation, it was found that the instrument was reading something else besides minerals, because in New York State we do not have an abundance of copper, gold and silver. The company decided that what the device was sensing might possibly be water; over a period of several years people who had had unusable wells drilled asked for the use of the instrument. The company had substantial success, but was not really sold on the use of the instrument for locating sources of water.

In 1965 I had a problem: where to drill a well? Mine was surely going dry. Since I had no knowledge of where to drill another well, through an article about the invention I became interested and investigated it. Little did I realize that a short three months later I would own the patents. My own well came in at the amount and depth that the instrument indicated, but with just a smidgin of error, proving that we can't be absolutely perfect. As a matter of fact, we do have our failures and often we don't know why. Many times



Aquatometer being used to locate water supply at new school site. Transporting instrument is Dick Jamieson and checking plot map is George (Hap) Jamieson, both experienced men in using the water magnetometer.

we are not present when the well is drilled; thus, we don't know how the well was drilled or if the driller was competent. It might even have been our fault because of insufficient knowledge of the area. We are not always supplied with local history to make proper judgment

or allowed enough time to make proper evaluation.

#### How Magnetometer Works

*The basic theory behind the new magnetometer is not too complicated. What the instrument senses beneath the ground,*

as we walk over the land with it, is the ionized stream of water underground, variations in the earth's magnetic field — and the imbalance in water distribution in a given area. Properly evaluated, these factors can mean water — at specific depths and in specific quantities.

Why should you be interested in this new concept of looking for water? Water and often lots of it must be supplied for every living thing we know of and often is just not available. The problem is not only to find it, but also in the quantity that is needed. What is a large volume well for one problem is completely unusable for another. A 200 gpm well for a golf course would be fine, but for the farmer wanting to irrigate, it wouldn't pay to put a pump in it.

Let's take the golf course problem first, since turf and greens consume great amounts of water. The difference between a watered fairway and a burned out one in August is dramatic. Before my own club put in watered fairways, I hit my share of shots off of hardpan and I can say that I much prefer the watered grass. My club was lucky and drilled two excellent wells blind. Still, two years ago they ran out of water in September and decided to tap into the city water to be sure of an adequate supply.

In many cases city water is not available or cannot be used because of a limited supply, as was the case of New York City during the drought. The courses in Westchester County were told that they could no longer use city water for fairways and, I believe, not even for the greens at the height of the drought. At that time I was called in by Winged Foot Golf Club to check specific areas for the possibility of drilling wells and had to tell them that the probability of finding wells in the 50 gpm range was almost nil. Fortunately for them, the restriction was removed shortly afterwards.

A short time later the Powelton Club, Newburgh, N.Y., decided to put in a fairway irrigation system. We were asked to locate the best source of water for this system with the emphasis put upon a primary area. We located a site in this area which did not produce the amount of water necessary because the depth of the gravel was too shallow. Another area was determined by instrument as a good source both because of the readings and also because of the possibility of a major fault put forth by a state geologist. The readings indicated water in gravel and a well was drilled into 25 feet of gravel. The gravel was very tight and would not develop. It was decided to drill into the rock; production wound up at 15 gpm. We then advised the club to drill about 50 feet away and try to develop the gravel. The well came in at 160 gpm without development. (In another case where we have not yet been called in, a club has already spent \$10,000 on wells with a total yield of about 25 gpm. Both the driller and several club members had recommended that we be called in to make a search. It never ceases to amaze me that so many people will spend so much money to obtain so little water.)

While we do not have the experience on gravel aquifers that we have on rock, we feel that the magnetometer can tell us a great deal about the flow of water through gravel. People involved with large irrigation wells tell us that they find these large wells by simply sinking test holes until they find one that indicates it will produce the desired amount of water. This is time consuming and sometimes quite expensive. If the instrument does what we believe it can, it will be quite an asset to those people looking for large irrigation wells.

Over the last three and a half years, we have been able to

maintain an extremely high average of prediction on water quantity as a result of drilling on our selected sites. Our Vermont franchisee, Accurate Water Location, Waterbury, Vt., has an even better average in that most difficult state. We anticipate that our newest franchisees should do well. (They are in Northern California, Colorado, Nevada and Upper New York State.) More are expected this summer. Even now, we can and will cover anywhere in the United States and Canada.

Professionals are increasingly using our services. Only recently we conducted a search for the Taconic Park Commission, looking for a 20 gpm well for development of a camping area. We were able to locate a site that produced 112 gpm at 150 feet. We have now completed a second search for them and anticipate doing several others. Architects and engineers are finding that our services are helpful to their school, industrial and home owner clients.

As time goes on, we expect ever-increasing use of our practical magnetometer. Its record of 98 percent accuracy on water location and 85 percent on flow rates will be exceeded as more experience is gained with this proven water prospecting tool.

*Coming  
Next Month  
In WTT:*

Poa Annua  
Herbicide Use In  
Potable Supply  
Thatch Removal  
Weed Society Report