



Water Divining FACT or FICTION?

W. H. WILLIAMSON, M.Sc.

*Senior Hydrogeologist, Water Resources Commission
New South Wales*



Water Divining Fact or Fiction?

"Is there anything in water divining?"

Ask this question in any group of farmers and graziers and you'll certainly start an argument, for there are few more controversial subjects in rural circles.

But amongst prominent scientific authorities, such as the United States Geological Survey and the Soviet Academy of Sciences, we find that the subject is not controversial at all.

SCIENTISTS the world over are agreed, as a result of numerous investigations over the years, that the practice of divining has no relationship to underground water. Furthermore they are agreed that the many and varied concepts diviners have of groundwater occurrence and movement, particularly with regard to so-called "underground streams", are usually quite misleading.

This must seem strange to diviners or believers in divining, but they should remember that many countries spend a lot of money on investigations of ground water resources and would therefore be only too happy to use a forked stick or a piece of fencing wire if these could provide the information needed.

Back in 1938 Bert Wilson wrote an article which he called "Debunking Divining", and in introducing it he humorously suggested that "There's more water underground than you can poke a stick at". Since then thousands of copies of this article have been sent to readers asking for our opinion on the subject, but in view of recent widely publicised claims of believers in divining "Power Farming" decided it was time to publish another article on the subject written this time by a practising hydrogeologist and having official backing.

History shows that it is human nature to surround with an aura of mystery any subject which cannot be explained. However, with sufficient knowledge the mystery is dispelled. Thus, for an observer not aware of the factors controlling the occurrence of groundwater, the diviner's claim to predict the unknown has a natural appeal. But if he (or the diviner for that matter!) took the trouble to find out what is known of groundwater and divining, he would not be misled by such claims.

Perhaps the factor that has most influenced many people to believe in divining is that they have seen or heard of a bore or well constructed on a divined site and yield a water supply, but this result by no means proves the validity of divining. When it is realised that in many areas groundwater conditions are so favourable that water can be obtained by boring virtually anywhere, it will be appreciated that the success of a bore on a divined site is not necessarily a credit to the diviner.

Going to the other extreme, in areas where groundwater conditions are unfavourable there is rarely any belief in divining because too much money has been wasted on failure bores.

THE practice of divination extends back into the mists of antiquity and an extraordinary variety of claims have been made for it. As well

as for locating so-called "underground streams", it has been applied to locating ore deposits and buried treasure (there is no record of such diviners becoming rich!), detecting criminals, finding missing animals and persons, diagnosing diseases, determining sex of unborn babies and unhatched chickens, and other equally diverse purposes. What is amazing, however, is that even in this enlightened day and age some people still throw logic to the winds and believe such claims, even though they have so often been refuted.



W. H. Williamson, M.Sc.

In past years there have been numerous scientific investigations on water divining, and perhaps their results can be summarised by quoting the late Dr. O. E. Meinzer, one of the world's leading authorities on groundwater hydrology: "It is doubtful whether so much investigation and discussion have been bestowed on any other 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..."

A considerable variety of implements are used by diviners. The most common are forked sticks, and L-shaped pieces of wire, but wire hoops, pendulums and even hand-saws have their advocates.

However, whatever is used, the essential feature in the operation of any divining implement is that it be held in a state of unstable equilibrium. Consequently, an appropriate slight movement of the hands, or change in muscular tension, will result in an accentuated movement of the implement. For example, the forked stick is held in a state of tension but it requires little movement to convert this into a state of torsion. The consequent twisting effect results in an impressive-looking sudden downward movement of the butt end of the stick.

In the case of the L-shaped piece of wire, the principle involved is simply that of a horizontal pendulum. The wire is held with the short end of the "L" as the vertical axis and if this is tilted slightly the long end of wire will swing in the direction of tilt. The "stream" is then taken to be in this direction.

Some diviners use a bottle or tube to hold the vertical wire, ostensibly ruling out any suggestion of moving the wire by hand, but, of course, by removing the friction between the wire and the hand, the implement becomes even more sensitive to slight tilting.

Similarly the operation of other divining implements depends on an initial state of unstable equilibrium; none of them do anything that does not conform with the laws of physics.



Hydrogeological assessment, not divining, led to the construction of this bore. It is tapping water-bearing gravels at a depth of about 124 metres in the Murrumbidgee Valley and is shown here being pump tested at 150 litres per second.

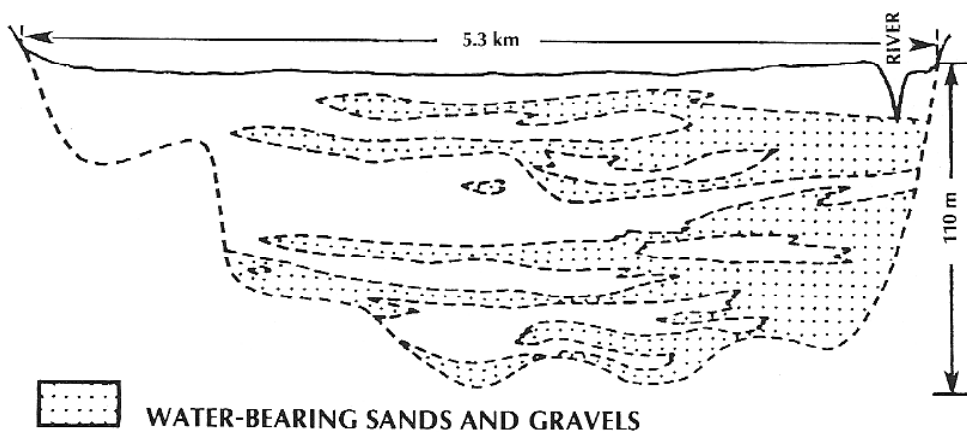
AUTHORITIES who have studied the matter mostly attribute the movements of divining implements to the effects of subconscious muscular action. (Where the action is conscious the diviner is obviously fraudulent, but such cases are not being considered here.) In any event, whatever the cause of the movements, it has been clearly established that it is not the presence of water or, for that matter, any other mineral.

There seems little doubt that the human element is involved, whether the diviner be conscious of it or not.

For example, it has been found that the most successful diviners are those who are good observers and well experienced in the area in which they operate, their failures becoming less frequent as their experience increases. In fact, if the groundwater conditions are particularly favourable, they may not have had any failures at all. But if such diviners are taken to an area where different groundwater conditions prevail it is usually found that the diviner indicates the apparent presence of water just as if the conditions were those of the area to which he is accustomed. These circumstances, naturally, often cause financial loss to the landholder.

If divining is discredited, how is the presence of underground water to be determined? The science of hydrology provides the answer, and the requirements are a thorough knowledge of geology and the factors governing groundwater occurrence and movement.

Even leading exponents of divining admit the necessity of observing geological features if one wishes to be successful in locating water. Thus, Le Vicomte Henry de France in his book "The Modern Dowser: A Practical Guide to Divining", states: "It is useless to look for water where



This sketch, showing the distribution of water-bearing sands and gravels in the alluvial in-fill of the Lachlan River Valley, near Gooloogong, NSW, as determined by test boring, indicates how a diviner can easily gain a reputation for success in such areas.

geology tells us there cannot be any. The dowser then must have a special knowledge of geology and especially that of the country where he is working".

Theoretically, of course, if a diviner has the "gift", such knowledge should not be necessary for success.

ONLY an elementary knowledge of geology is required to realise that the diviner's conception of "streams" is largely erroneous, the only common rock type in which water is found in true streams being limestone. Here the water actually dissolves the rock to form channels and examples of these can be seen in limestone caves.

In other rocks water occurs in a variety of conditions, e.g., in joints or cracks, in bedding planes or partings between rock layers, in beds of porous rock such as some sandstones, or in beds of sand or gravel in alluvial deposits.

Factors, such as rock types and structures, topography and drainage and amount and seasonal distribution of rainfall, are all important in controlling not only the presence of water but also its quality and yield. Thus groundwater conditions may often be complex, and it requires a hydrogeologist (i.e., a specialist trained both in hydrology and geology) to assess these factors.

It is not claimed that a hydrogeologist is infallible; he can

BORES CONSTRUCTED BY THE (THEN) WATER CONSERVATION & IRRIGATION COMMISSION BETWEEN 1918 AND 1945

	Divined		Not Divined	
	Number Sunk	%	Number Sunk	%
Bores in which supplies of serviceable water estimated at 450 litres per hour or over were obtained.....	1,291	70.4	1,516	83.9
Bores in which supplies of serviceable water estimated at less than 450 litres per hour were obtained.....	185	10.1	96	5.3
Bores in which supplies of unserviceable water were obtained.....	87	4.8	61	3.4
Bores—absolute failures, no water of any kind obtained.....	269	14.7	133	7.4
TOTAL	1,832	100.0	1,806	100.0

In New South Wales, the Water Resources Commission has a staff of hydrogeologists and technical advice on groundwater problems or prospects can be obtained on application. Financial assistance is also available to landholders for approved water supply schemes.

be guided only by the available evidence and often this is far from complete. Nevertheless, application of scientific methods in locating groundwater is far more successful than divining.

IN conclusion the accompanying table from the New South Wales Water Conservation and Irrigation Commission's Annual Report for 1945 is presented. It is particularly significant because statistics on the comparative results of boring on "sites divined" and "sites not divined" are rare.

The table summarises the results of the 3,638 bores constructed by Commission boring plants between 1918 and 1945, the last year in which such records were maintained. In approximately half of these cases the landholder required the bore to be constructed on a divined site.

It will be noted that the figures show that the results of drilling on sites not divined have been much more favourable than those having the "advantage" of being divined. In fact, the percentage of failure bores on divined sites is about twice that for sites not divined.

It is pointed out also that prior to the introduction of new regulations in 1947 the Commission was committed to boring on whatever site the landholder stipulated, and many of the undivined sites were unfavourably located. Since then, however, the Commission has constructed bores only where hydrogeological assessment indicated that there were reasonable prospects of obtaining water, so that today, failures are rare.

And this without the aid of a diviner to trace the elusive "stream"!

