

WATER DIVINING AND ITS RELATION TO CIVIL ENGINEERING

By I. HOPKINS, M.S.E.

As a civil engineer in a senior capacity with a London firm specialising in foundation and constructural waterproofing, I am afforded ample opportunity to come in contact with problems relating to underground streams, and their relation to constructional work.

In the first place, I think that details of a recent experience will prove of interest, as I was fortunately able to prove, in a practical form, my investigations, which were, in the first instance, carried out by means of my divining faculties.

An Institution in North London has for water supply purposes two reinforced concrete reservoirs, built as one unit, and separated by a diaphragm wall. Each reservoir is approximately 30 feet square and 30 feet deep, and normally contains 25 feet in depth of water. The water supply is obtained from an artesian well alongside the reservoir. The reservoirs are built partly below ground level, and are covered over with 6 feet of earth, access being obtained by means of vertical shafts.

The strata is chalk to a considerable depth, and is not water bearing. The reservoirs are approximately 400 feet above sea level.

Following a test indicating that the west reservoir was losing approximately 7,000 gallons of water per hour, my Company was called in, and the author undertook the necessary investigation. On arriving on the site, it was presumed that the reservoir would have been emptied so that an internal examination could be made, but it was found, however, that no preparation had been made and that the reservoir was full and in commission.

Under the circumstances a test was made with a divining rod in order to locate the position of the leakage. Definite reaction was noted along two lines of leakage at an angle of 140° , which met at a point on top of the reservoir near the access manhole. These lines were carefully pegged and noted by measurements. Following this, the author was blindfolded as an experiment, led away from the reservoir, then brought back again still blindfolded, and it is interesting to note that the reactions occurred over the same lines of leakage.

It should be particularly noted that the reactions occurred through 6 feet of earth and 25 feet of still water contained in the reservoir. No reaction was noted over the other sections of the reservoir, indicating that still water was not affecting the author.

After an interesting few hours on these tests the Institution Engineers decided to suspend their first suggestion of carrying out external excavations, and it was agreed that the reservoir be emptied, and an internal examination be made by the author.

This was duly arranged, and when the water level was approximately 18 inches above floor level of the reservoir, the writer entered, taking with him one of his foremen, who eventually carried out the repair work.

At this stage further tests were made with the rod, and the point of leakage located, the position being identical within practical limits to that indicated in the first place, on top of the reservoir.

When the reservoir was empty a careful note was made of indications of "return" water, *i.e.*, the water which had leaked into the ground and built up a local pressure. This was observed for a short period at a point in the sludge channel, and when the concrete was examined in detail a fault was found at the floor joint due to bad workmanship. The location of the point concerned was carefully checked from the first point marked out on top of the reservoir, and their positions coincided within about three inches. The defect was carefully cut out and the channel repaired in the position concerned. Following this, a series of tests was made by the Institution Engineer, and it was found that the leakage had stopped.

This is one of the many interesting experiences the author has had in the course of his professional duties with the resultant saving of inconvenience and expense. Another experience consisted of locating a series of underground culverts, under an old building, and which were finally traced by means of trial holes to a river nearby, and were presumably for drainage purposes.

The field of application of the faculty of divining water, has, as everybody will appreciate, a very useful and wide sphere in civil engineering, and during his experiences the author has found that some of his foremen are highly gifted in the faculty. Though an individual with a natural tendency towards the practical side of things, I feel that a few remarks on the theory of water divining may be of interest.

It is generally accepted that the medium used in the form of a rod or pendulum or other instrument has no relation to the rays, if they may be termed so, emanating from an underground stream. It is also accepted that the so-called rays affect the nervous system of an individual, with an effect transmitted to the arm or body muscles, and these in turn, by certain actions, cause a movement, of a definite nature, in the instrument used. The form of the movement concerned gives the necessary indications on which conclusions are made regarding the location, depth, direction, and character of an underground stream.

These theories sound extremely practical, and to some extent are so, and would seem to indicate that a purely scientific basis can be formulated, and technical data obtained, which could be used for either explaining the mystery surrounding the divining faculty, or used for practical purposes. The author agrees to

some extent that this theory is a sound one, but at the same time, as a student of psychology, he feels that there is far more in the subject than cold facts in the form of mathematical calculations and scientific deductions based on research. It is the author's theory that the basic principle involved is the mind itself, particularly the powerful subconscious mind, and that this is influenced by the so-called rays emanating from streams or objects as the case may be, and in turn through the nervous system and muscles produces the movements in any instrument used.

The author is doing some research work on this theory and hopes to write further on the subject.

REACTIONS TO RADIO IN THE ANTARCTIC

By Dr. HELMUTH HUSSERL (M.D., Vienna)

[Reprinted from The Forum of June 3rd, 1939]

When going on board the *Suderoy* I was looking forward with great interest to the experiences which I hoped to make with the divining rod, and I am glad to say that I was not disappointed in my hopes.

To begin with the kind of instrument I had to use in the Antarctic regions, I found out very soon that the sidereal silver pendulum was of very little use on account of the continuous pitching and tossing of the ship and the strong wind. My normal *silver rod* and the *angular rod*, equally made of silver and fitted with a radio-actively coated case, did good work. Finally, I did not miss the opportunity to use whalebone for divining rods, it being highly recommended in French literature on the subject, and it proved excellent. In this connection, I might mention that the signification "divining rod" is absolutely out of place in a field of research work, and I would propose to call this instrument "Radiosent."

On board ship I was always successful in locating with the radiosent, water pipes, oil tanks (both for fuel and whale oil), machine parts made of iron or brass and the coal bunkers as well. The moment, however, when I tried to examine the sea-level with the radiosent, the latter did not show any deflection; consequently there was no effect of earth-rays on the sea which had an average depth of 9,000 to 10,000 feet. The abundance of atmospherics, however, of our wireless set and the measurements of ionisation were evidence of the existence of an effect of "cosmic rays" in large quantity.

As many scientists—also according to my own theory, which is based on repeated experiments—consider the earth-rays as