Friedrich H. Balck

Radiaesthesia as an Important Tool for Physical Experiments - Part 5

Flowing Water – Aquifers in the Laboratory

1. Flowing water and subtle matter

Difficulties are encountered in efforts to physically explain geopathic structures, since hardly any results of scientifically verifiable research work have been published, and very few suitable measuring instruments are available for the purpose. The situation is similar to that which prevailed in the 18th and 19th centuries. At that time, electromagnetic effects were observed with the investigators' own physiological senses and systematically recorded (for instance, by Galvani, Faraday, Oersted, Ritter). The design and construction of measuring instruments did not become possible until their results had been published. During the interim, these same instruments have largely replaced and thus suppressed the use of one's own senses as well as one's knowledge of these senses. In the case of geopathic structures, one has not yet progressed so far. Investigations in this field are still in a phase of observation. Two measuring instruments have been acquired, and experiments have been performed with them: SEVA von M. Kinker and IGA-1 von Y. Kravchenko [1]. However, the operation of these instruments is difficult and requires a human user.

How can one recognize the presence of flowing water under the Earth's surface at a depth of several metres? Some drillers initially determine the drilling site exactly with a divining rod or similar device before beginning operation with their drilling rig. A few of them can even ascertain the depth of an aquifer and the available water influx, for instance, if they have sufficient experience. This result may astonish some doubters and sceptics, but the predictions can be easily checked after completion of the work. Furthermore, since this procedure is decisive for the economic success of the company, it demonstrates the quality of the driller's perceptive ability in the event of agreement.

Figure 01: Water flows through narrow cracks or fissures in the rock – a "water vein" or aquifer.

What is the reason for the indubitably high success rate of the drillers? How is this observation explained in textbooks on physics?

Sensors

For this purpose, the biological sensors of humans or animals have proved to be useful.

In the course of evolution, living creatures evidently needed many senses for surviving. In the case of humans, however, some of these senses have gradually been lost or become stunted as civilization progressed. The fact that cats can scan some objects in three dimensions with their whiskers (tactile hairs) and the associated nerves suggests that we humans formerly also possessed these abilities. Where could remnants of these senses still be present? The trigeminus nerves are situated in the area of the upper jaw. Some persons with extended sensory perception are capable of discerning the geometry of invisible structures in the zone in front of their face and may even be able to analyze these structures spatially.

The observation that flowing water can exert an influence on humans has been verified by electro-encephalographic measurements [2, 3], and the effect on the dimensions of human

bodily fields has been demonstrated [4]. Refer to [5, 6] for further directions for performing simple experiments with water.
The experiments described here were performed during the period of **extremely good weather in the summer of 2018**. There was hardly any wind at all, and perceptible effects of natural underground aquifers were very weak. Thus, the conditions were optimal for experimentation!

2. Experiments with water hoses, direct current conductors, and fibre optics

2a) Water hose, arranged in meander form

Experienced dowsers can distinguish between "left" and "right" with some objects. In the case of a rotating wheel which is driven by a motor, this result is immediately obvious. However, the meaning is not quite so evident if the effects are caused by water which is flowing underground. Can such a phenomenon be observed at all?
The plausibility of this question can be tested with the use of a simple arrangement.
A thin hose is placed on a lawn in such a way that a meandering pattern is obtained (figure 2a). One end of the hose is connected to the water mains, and other end is routed to a drain in the immediate proximity. As soon as water flows through the hose, alternate zones of left and right rotation are established in the respective loops. In this manner, a dowser can train himself for directional perception. A simple test can be performed for determining whether or not this training yields the desired success: One asks someone to interchange the inlet and outlet of the hose at random.
The spatial proximity of the two states offers the advantage of quasi-simultaneous mutual comparability between two loops.

2b) Crossing of hoses with moving media

If a hose is laid out in such a way that a loop (similar to a "red loop") is formed, two different qualities can be perceived by a dowser in this case, too (figure 3b, left). If water is flowing, the behaviour is governed by two parameters: the flow rate (left / right) and the direction of inclination for the helical motion (up /down). Four states thus exist:
1. left over right, 2. right over left,
3. inlet on the left 4. inlet on the right.
The situation is analogous to that with mechanical screws, where circular motion is imposed on linear motion in the axial direction, that is, in the direction perpendicular to the plane of the circular motion. The sign of the thread pitch and the sense of rotation determine the direction of advance with the screw. Left rotation with a left-hand thread results in advance in the same direction as right rotation with a right-hand thread.
If two loops in the form of a figure eight are placed one over the other (figure 2c), all four states are established simultaneously. For a beginning dowser, this configuration is a good test object, whose qualities can be varied with only a few steps.

2c) Direct current in a conductor

Experiments have shown that the perceptible qualities of many other subtle structures behave in a manner similar to that observed with loops of hoses with flowing water or compressed air. Analogous phenomena are observed with electric current flowing through a conductor or even with light (figure 2b).
In view of the analogous results obtained upon interchanging the directions of motion or screw sense, one may conclude that the **natural laws** which govern the **motion of matter** are involved here.
For humans, stress can thus originate from electric cables or fibre optics, as well as from water flowing in pipes and hoses, if these are curved or looped.
In the case of electric current, this astonishing result can be easily demonstrated, for instance, with the use of an insulated length of copper wire, a resistor, and a standard 1.5 V flashlight cell. For this purpose, the current strength is set to about 100 mA.
(+) - wire loop - resistor (15 ohms) - (-)
The circulation of the current in the loop can be designated as right rotation if viewed from one side, and as left rotation if viewed from the other side.

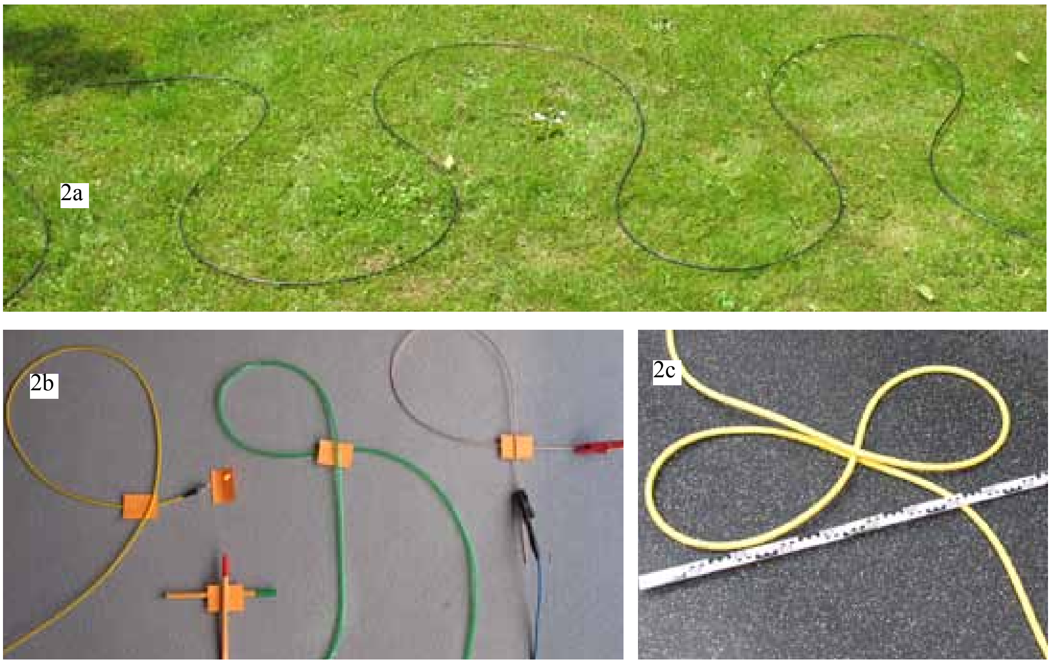


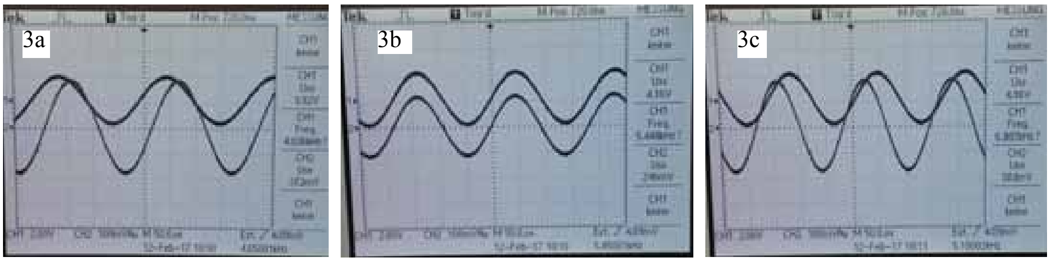
Figure 2: Loops
2a: Hose arranged in meander pattern: The left and right loops have different perceptible qualities.
2b: Three loops with crossed ends exhibit similar behaviour in operation: fibre-optical cables, water or air hose, copper wire. The two pens at lower left symbolize the point of crossing.
2c: Triple crossing with two loops with circulation in opposite sense

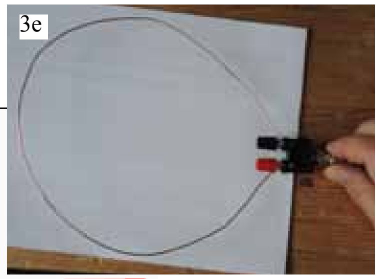
- If the loop is now turned by 180° from the standpoint of the observer, that is, if the front and rear sides are interchanged, the perceived "direction of circulation" also changes.
- If the connections with the flashlight cell are reversed, that is, if the polarity is reversed, the effect is the same as that which results from the reversal of the front and rear sides.

2d) Fibre optics
The behaviour observed with a fibre-optical cable is similar to that determined from the experiments with direct current. Fibre-optical cables are available as accessories for electronic equipment, such as audio systems. A laser pointer is also necessary for the purpose. The cable is arranged to form a loop, and light is then allowed to pass through the cable. The two sides of the loop, or the ends where the light enters and emerges, are subsequently reversed. Both reversals result in a reversal of the sign in the direction perceived.

2e) Crossing of two light beams
Crossing of two light beams with two mirrors to form an 'X' is even simpler (that is, almost without the need of technical devices), if the beams cross at different heights (figure 28 in [5]). The sun can be employed as light source and is available at no cost. In the zones to the left and right of the 'X', the perceived directions are reversed. This experiment could even have been (or has been?) performed by the ancient Greeks or Romans.

2f) Phase of alternating current
A further, even more fascinating experiment involves alternating current. In our households, certain electrical devices of the past (such as incandescent lamps or immersion heaters) operated as purely Ohmic resistors. That is, the current and voltage remained in phase. However, this is not true in the case of motors or fluorescent lamps. With these devices, an additional current component (the reactive component) is present. This reactive current either **precedes or follows** the voltage; that





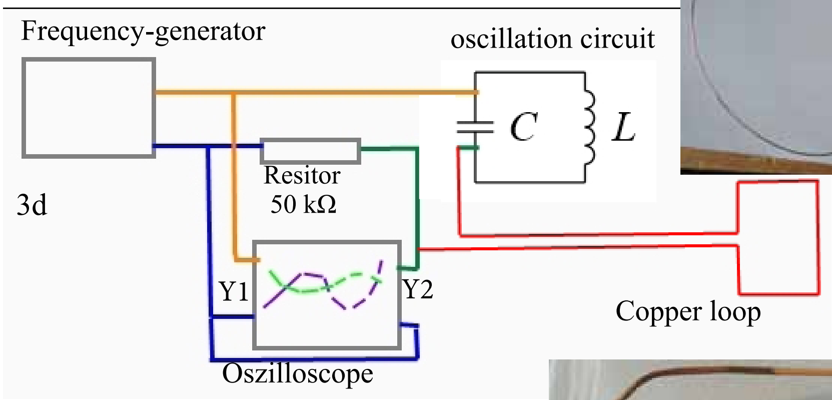


Figure 3a-c: Oscilloscope images with alternating current signals in an oscillating circuit driven at three frequencies: different phase shifts between the current (upper curve) and voltage (lower curve) for the frequencies 4860 Hz, 5440 Hz, and 6100 Hz
Figure 3d: Schematic circuit diagram;
C = 1 μF, L = 0.86 mH
Figure 3e: Loop of copper wire

is, a phase shift occurs. The results of our experiments have shown that a dowser with the ability of distinguishing between **"left"** and **"right"** can also recognize the direction of a phase shift between the current and voltage. Only a few components are necessary for the experiment (figure 3): a loop of copper wire (figure 3e), a frequency generator, and an oscillating circuit with a resonant frequency fo. Three test conditions apply: The generator is set to the respective frequencies

f1~0.9*fo, f=fo, and f2~1.1*fo.

The current and voltage then behave as shown on the oscilloscope screen (figures 3a-3c). At frequency f1 the current **precedes** the voltage (figure 3a), and it **follows** at frequency f2 (figure 3c). The current and voltage are **in phase**

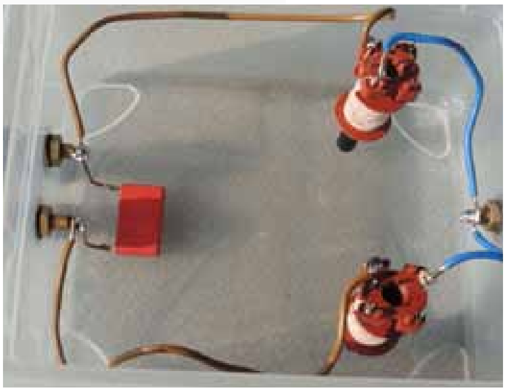


Figure 3f: Oscillating circuit in accordance with Dr. Dieter Aschoff, left: capacitor, right: a coil subdivided into two halves

at frequency fo (figure 3b). In the example illustrated in the figures, the frequencies are f1 = 4860 Hz, fo = 5450 Hz, and f2 = 6100 Hz.
Observation: The perceptible properties of the wire loop (such as left and right) are reversed if the **sign** of the phase shift is reversed. That is,

- the properties observed at f1 are reversed at f2, and
- the **properties on the front side are reversed on the rear side.**

http://www.biosensor-physik.de/biosensor/resonanz-phase.htm

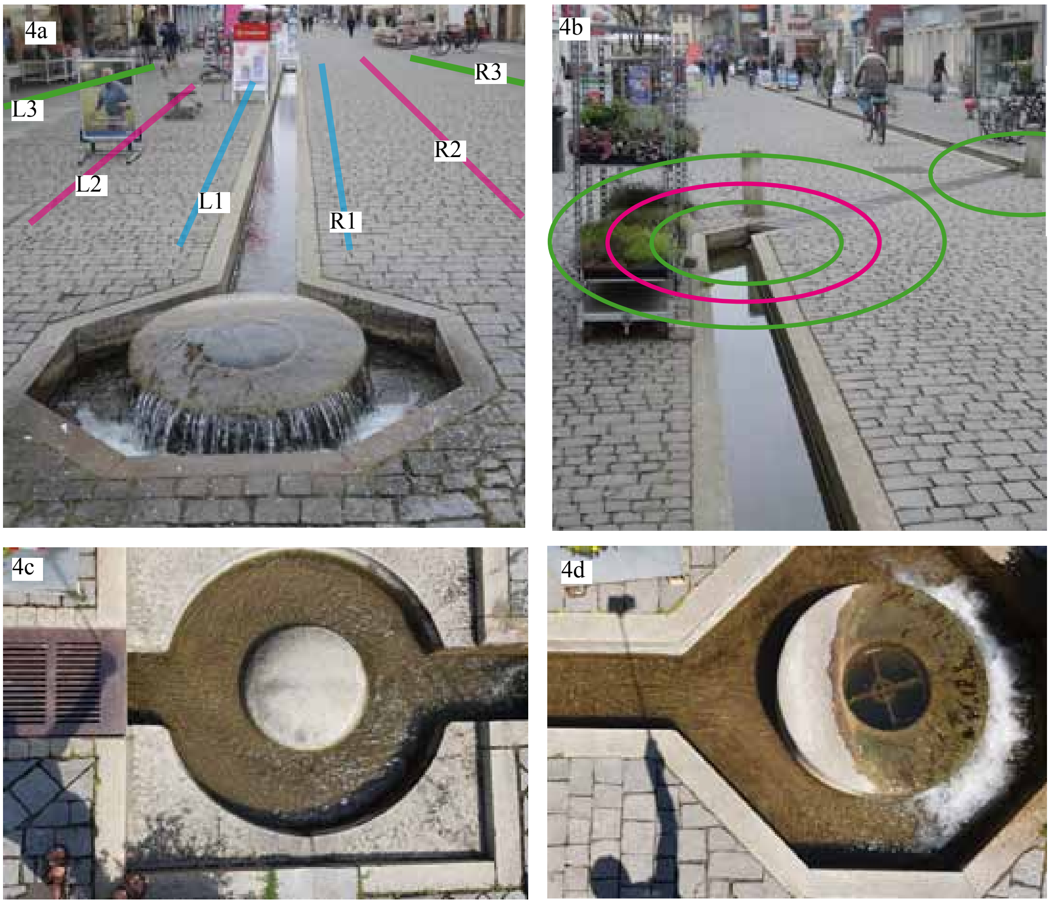


Figure 4: In the pedestrian zone in Forchheim (Bavaria, Southern Germany), water flows in a stone-lined channel.
4a) Beginning of the channel: Three perceptible zones are present on both sides of the channel, left and right, and extend in parallel with the channel, and exhibit different qualities.
4b) Circular zones are present at each of the bends.
4c) Source ("spring"): The water flows from an underground pipe at the centre and continues to flow to the left.
4d) The drain is located underneath the iron grate.

Although only simple parameters such as side reversal or frequency changes are involved in these experiments, observations performed with the aid of biological sensors (dowsers) have resulted in a surprisingly different view of alternating current phenomena.
The other two experiments with direct current and light also indicate that numerous questions still remain unanswered. The need for further research and investigation in the field is considerable, since the results of observations by persons with extended perceptive ability do not correspond with the present-day view of the physical world.
If dowsers are capable of detecting reactive currents, it may be assumed that an additional geopathic effect emanates from such sources, as in the case of water flowing through a loop in a hose.

3: Observations on an artificial water-supply channel
In former times, cities and towns did not yet have water-supply pipelines or sewage-disposal systems. Water flowed through open channels in the streets. In some communities, these narrow channels have been preserved to the present day and serve as attractive historical ornaments in pedestrian zones. (Examples include Freiburg im Breisgau and Forchheim.)
In Forchheim, the **"Bächla"** flows through smooth-walled stone channels which allow

nearly laminar flow over long distances (figure 4). A “spring” (source) is located at one end (49°43‘4.93“N, 11° 3‘34.02“E), and a drain (sink) is situated at the other end (49°43‘12.68“N 11° 3‘28.66“E). An examination of the aerial photograph in the Internet is worth the effort. Four 45° bends and a few small gradient sections at various intervals cause turbulent flow over a distance of a few metres. For the interested dowser, this channel constitutes an ideal training path, provided that he is not annoyed by the curious gazing of passers-by. The water flows at a rate of half a metre per second. Under these conditions, extensive zones of easy perception are present over long distances on both sides of the channel (L3-L1 and R1-R3) with a spacing of about one metre or more (figure 4a). The quality of the zones differs from location to location. Structures such as concentric circles can be found at the bends (figure 4b). In turbulent zones, the perceptible structures are very complex.

4: Artificial „Bächla“: water hose in a garden

The results of observations on the artificial water-supply channel in the pedestrian zone have suggested a further experiment. In a simplified arrangement, a long water hose was laid on a lawn. By appropriately adjusting the rotational speed of an electric pump, the flow rate and thus the speed of the water were adjusted. The water was later supplied from an elevated storage vessel (figure 5). Selection of low speed values less than 0.3 m/s proved to be advisable, since large perceptible structures are presumably formed because of the predominantly laminar flow. These structures range from decimetres to metres in size and are thus easy to observe.

As in the case of the urban water-supply channel, special emphasis was now placed on the zones which were parallel with the hose and on those in the area of a curve. A straight section with a length of about 15 metres was present between the pump and the first curved section.

The flow rate was measured with an electronic flow meter, whose function was checked with a litre vessel and a stop watch at regular intervals.

Figure 5: A small elevated storage vessel is sufficient for the experiments. After priming by suction on the hose, the water flows out independently. At the low flow rates in the range of litres per minute, the supply of water is sufficient for experiments of long duration.

4a1: Zones parallel to the hose

If water is flowing in the hose, three perceptible zones (figures 6, 7) are present on both sides of the hose. These zones are designated as **L3, L2, L1**, and **R1, R2, R3**, respectively (figure 7), and their positions are marked with sticks (dowsing at the inspection height of about 1.1 m). In figures 7 and 8, the positions of the zones are indicated by coloured strings. The two measuring sticks are each three metres long. Two concentric double helices are also present around the hose and rotate in opposite directions. The lateral extension is about 0.5 m for the inner helices and about 1 m for the outer helices. One characteristic length is laid out with wooden sticks in figure 8.

For different flow rates, the respective positions of the three perceptible zones R1, R2, and R3 on the right-hand side of the hose were marked with wooden rods on the lawn and then measured. The values thus determined were recorded. The positions of the three zones on the left-hand side, L1, L2, and L3, behaved more or less as mirror images.

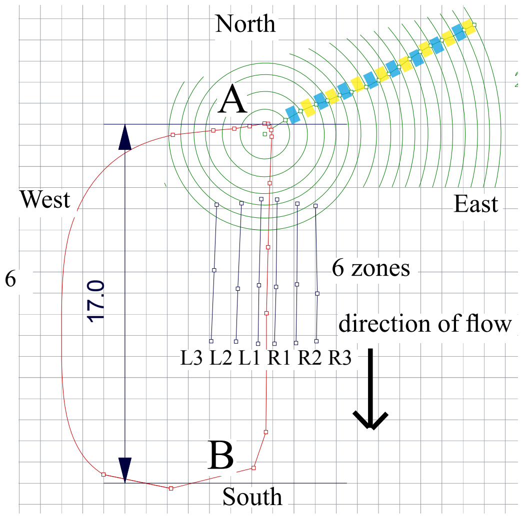
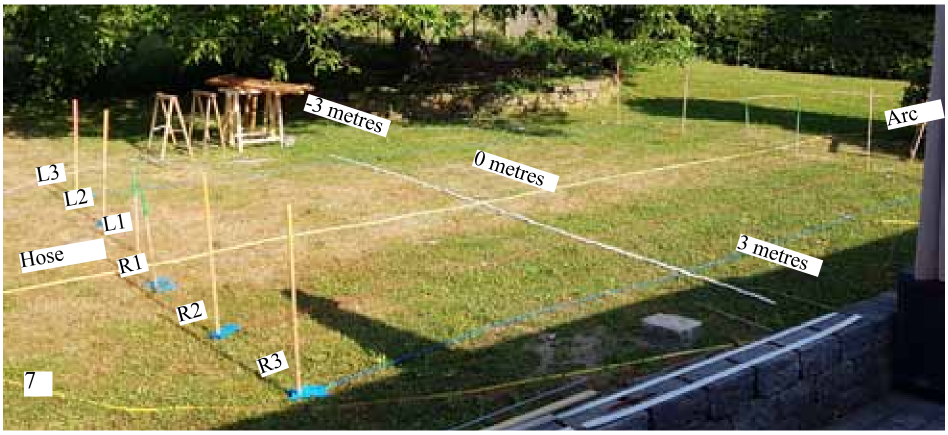


Figure 6: Arrangement of the elements (The grid is graduated in metres. The positions of the points have been determined with a tachymeter. The lines and circles are only schematic.)
A: hose bend, B: pump; green: concentric circles with circular zones of alternating quality (yellow and blue), red: hose, black: detected zones L3 to R3;
distance from the bend to the pump: 17 m

Figure 7: The water flows through the yellow hose from upper right to lower left. The two measuring sticks are 3 m long. In parallel with the hose, the zones L3 to R3 are marked with vertical wooden pegs and also with coloured strings. The zones are about 20 cm wide; the strings indicate the middle of the zones.

Figure 8: The arrangement is illustrated as seen from above, with a shadow of the camera on a long pole. The three wooden sticks on the lawn indicate further structures (double helices).



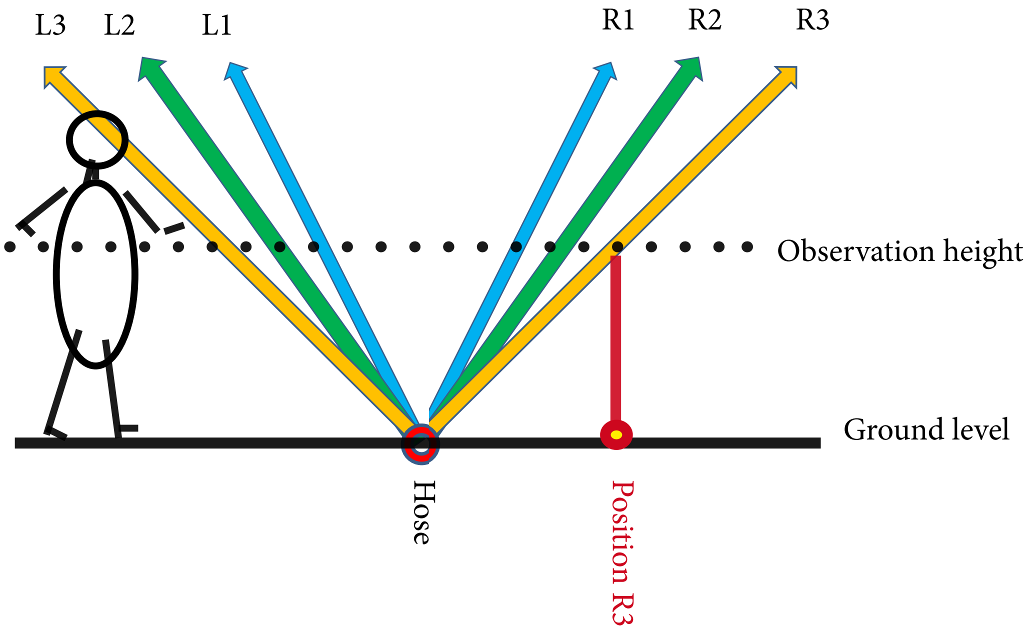
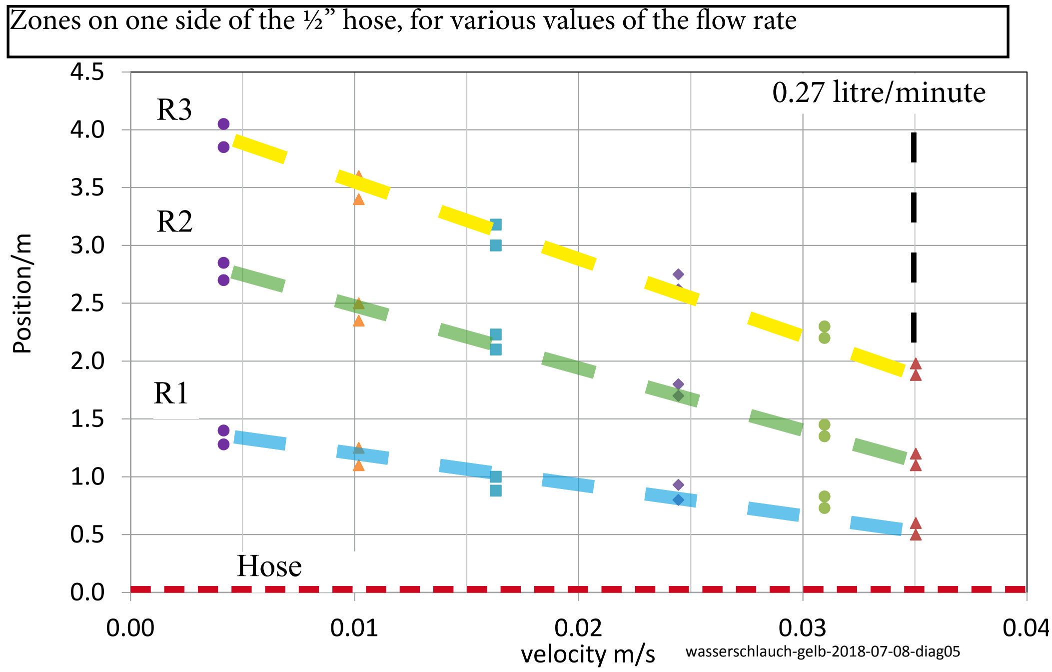


Figure 9a: View in the axial direction of the hose: The zones are observed at a height of about 1 m, and their positions are projected downward to ground level.



The higher the velocity, the smaller the distance to the center at observation height.

The angle grows with the velocity.

Figure 9b: The positions of the zones R1 to R3, are shown for various flow velocities, each at the left- and right-hand edges. Water hose yellow

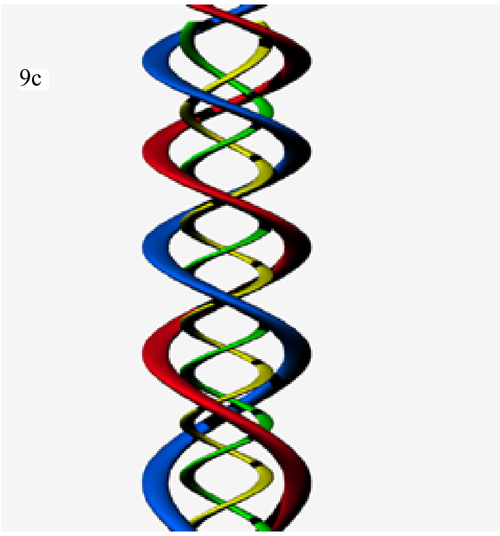


Figure 9c, schematic diagram: Two double helices are present around the hose. In comparison with the outer helices (blue and red), the inner helices (green and yellow) have a shorter lead, a smaller radius, and the opposite sense of rotation.

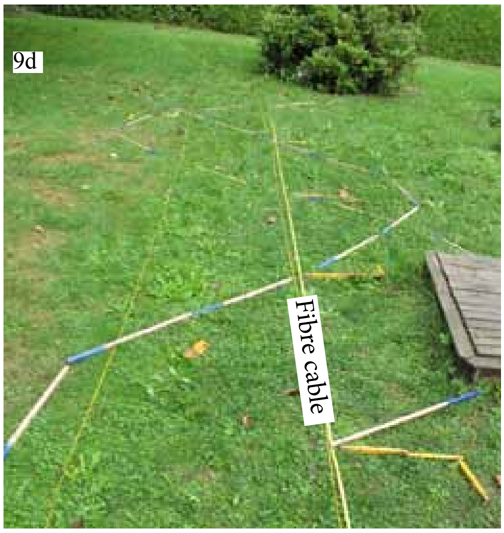


Figure 9d: The two contours of a double helix around a fibre-optical cable are indicated schematically with wooden sticks. The yellow scales mark the positions of measurement.

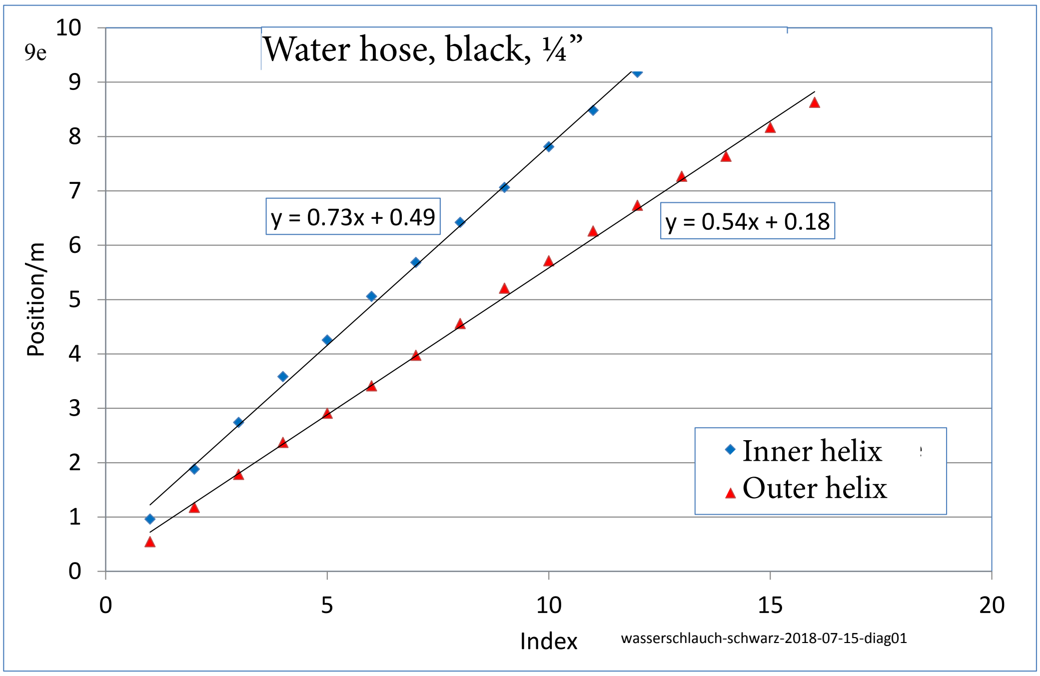


Figure 9e: Two double helices which wind around a ¼” hose extend in the longitudinal direction: The positions of the maxima found for the inner as well as the outer helices are each plotted along a consecutive number. This representation provides a simple overview. If the distances are uniform, the sequence of points can be approximated quite well by a straight line. The slope of this line is then the average distance. In this case, the straight lines fit well and yield values of 0.54 m and 0.73 m.

For exploration before drilling a well, the bishop's rule states that the depth (of an aquifer) can be determined from the lateral spacing of the zones. (This rule was recognized by the Bishop of Grenoble in 1780.) To which extent is it correct?
At different flow velocities from about 5 mm/s to 50 mm/s, the distances from the zones R1, R2, and R3 to the hose were determined for the left and right edges of each zone. For this purpose, the observer moved over the lawn at the normal altitude. Quite surprisingly, a definite **relationship** is evident (figure 9b): **With decreasing flow rate, the zones drift further outward.**
From the lateral arrangement (position and angle) of the zones, further information on the flowing water can evidently be derived.

4a2: Further structures: double helices
Besides the parallel zones, further structures occur periodically in the longitudinal direction with respect to the flowing water. One of these structures has received the name "Wasserknacker" from J. Polivka (2012), in analogy with a chain of sausages (Knackwurst) during production [7]. In addition to the "Knacker", further elements occur in the form of "leaves" or "fishbones" [8]. The "Knacker" are evidently the external envelopes of double helices (double-thread screws). Two such double helices of different diameter and of opposite rotational sense are mutually coaxial (figure 9c). In figure 9d, the two-dimensional projections of the two double screw threads around a fibre-optical cable are indicated by wooden sticks. In figure 9e, the periodic spacing is shown for the inner and outer double helices around a ¼" water hose. The inner has a period of 0.54 m, the outer 0.73 m. The lead ratio is 0.54/0.73, that is, about 2/3.

4a3: Semi-planes
When water flows vertically downward through a hose four semi-planes can be observed (figure 15d). These planes rotate slowly counter-clockwise about the axis of the hose.

Figure 10: Different diameter and materials
10a: from left: black PE inside diameter 5 mm, plastic pipe for domestic installation, 40 mm, connected with a PVC hose, inside diameter 6 mm; yellow 1/2" hose;
right: aluminium pipes with 1 mm wall thickness
10b: Outside diameter: 16, 12, 10, 8, and 6 mm; flow rate for experiment: 0.180 litre/minute

Further effects
The results of preliminary experiments also indicated effects of the **inside diameter** and **material** of the hose.
Astonishingly, however, the inside diameter is of no importance if the **flow rate is kept constant** during variations of other parameters. For this purpose, five aluminium pipes of different diameter (figure 10a) were connected in series, and the same water thus flowed through all five pipes one after the other. The distance of the

zones from the pipes was the same for all five pipes.
A similar experiment was performed with a 40 mm plastic pipe for domestic installation and an 8 mm PVC hose connected in series. In this case, too, the zones were situated at the same positions for both objects.
What phenomenon could be hidden behind this observation? In fluid mechanics, **Reynold's number** is employed for estimating the point of transition from laminar to turbulent flow. (The flow is expected to be turbulent at a value somewhat above 2000. For our experiments, the value is much lower.) This pure number includes the product of a characteristic length, such as the pipe diameter, and the velocity of

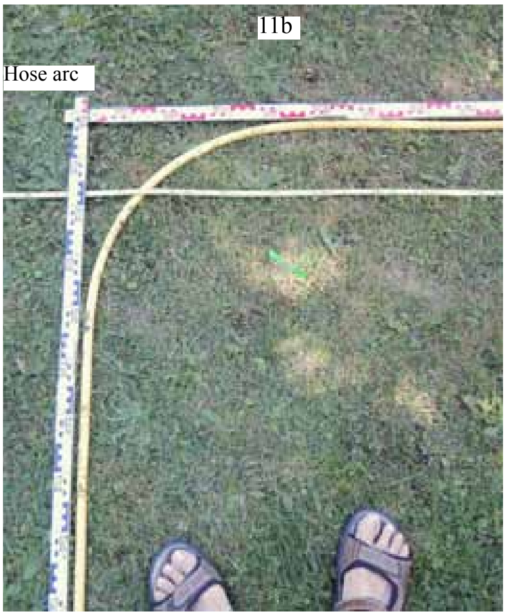


Figure 11a: Bend in a hose with measuring stick: Three rows of reflector marks in the background correspond to three different velocity values. The respective marks identify one point on each ring. The period is shorter for the left-hand row and longer for the right-hand row.
Figure 11b: A bend in the hose with a measuring stick for indicating the scale
Figure 11c: Reflector marks
Figure 11d: Vortices in the vapour trail of a jet plane
Figure 11e: Water flowing against obstacles

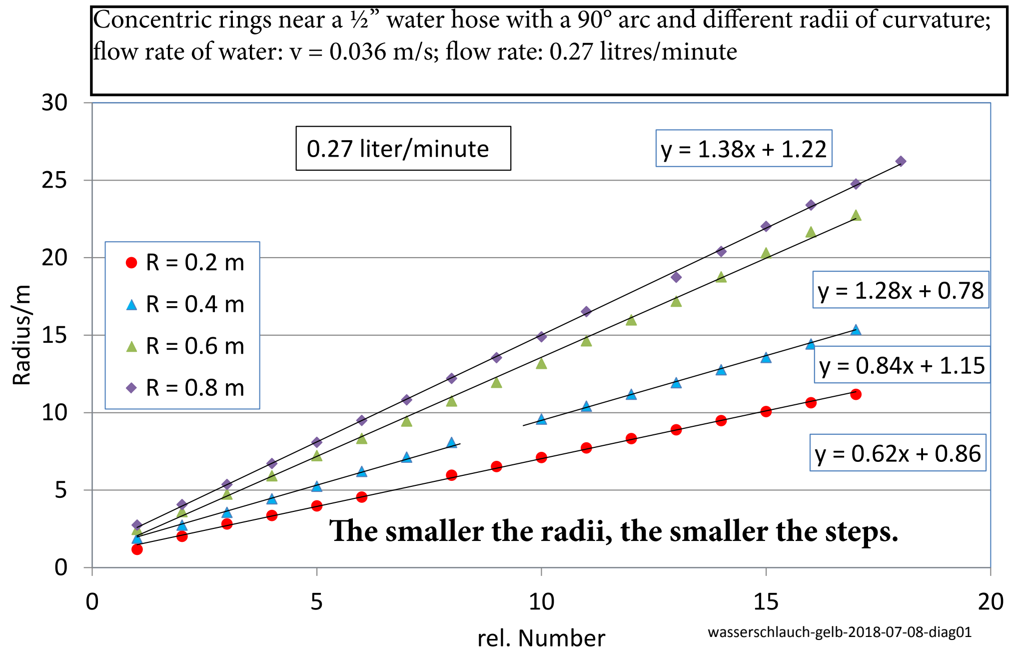


Figure 12: Measured radii of the ring-shaped structures for different radius of curvature of the arc (Refer to the comment from figure 9b for the type of representation.)

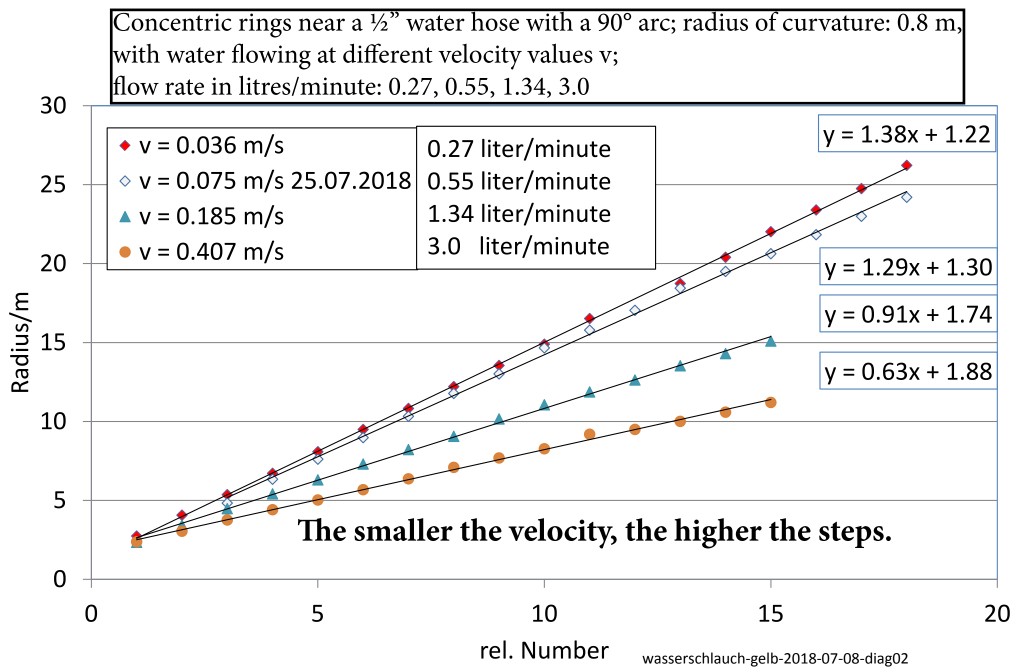
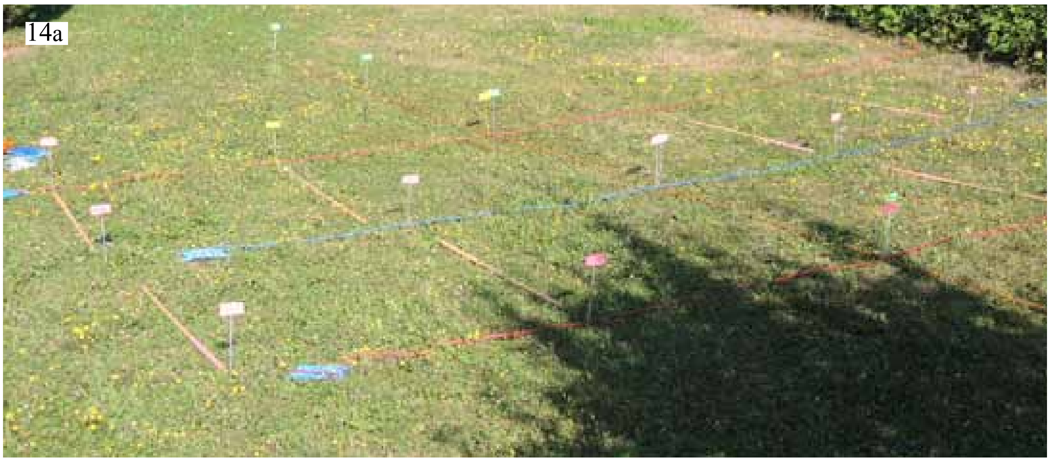


Figure 13: Measured radii of the ring-shaped structures for different flow rates of the water



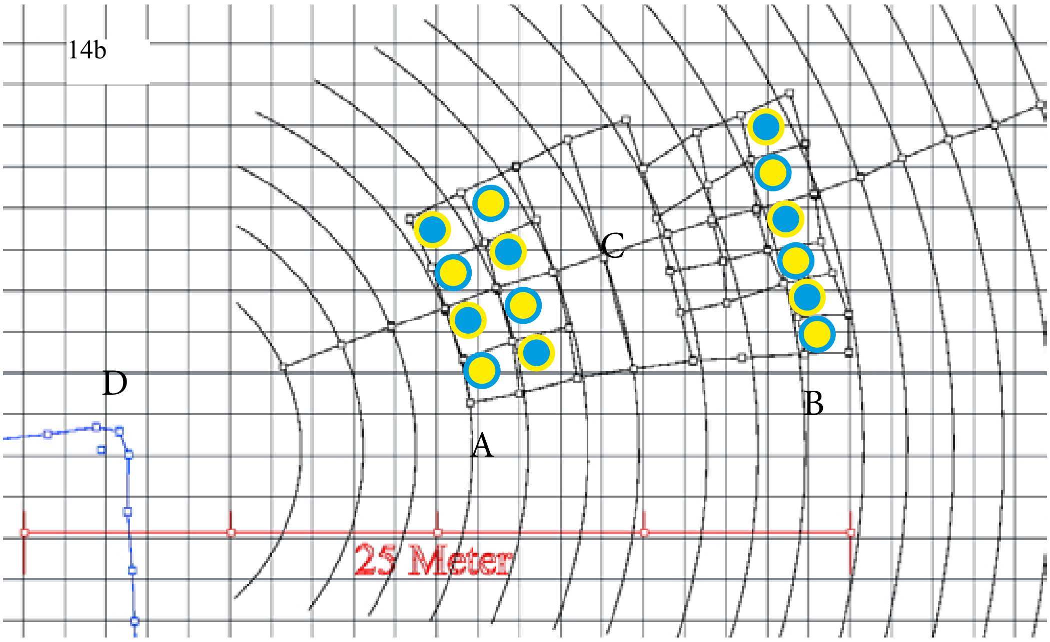
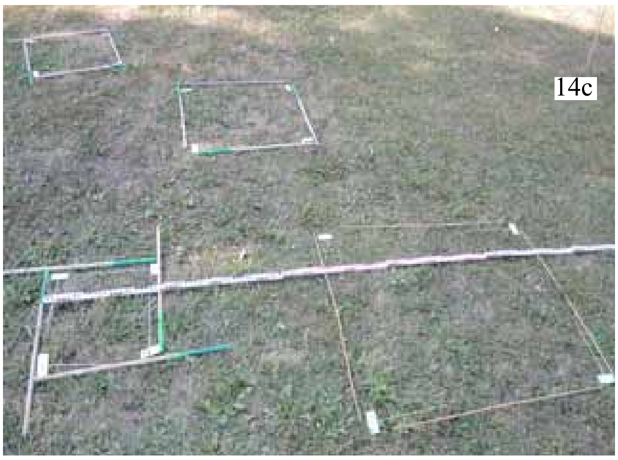


Figure 14: vortex cells
14a: Yellow ½" water hose with 90° bend: The midpoint is located somewhat outside of the upper left corner of the picture. The observed structures are indicated by coloured strings, wooden pegs, and reflector marks.
14b: Ground plan of the structures, hose arcs at D; A: four cells per sector, B: six cells per sector, C: increasing number of vortex cells per circular ring in the outward direction: Each cell contains two concentric vortices which rotate in opposite senses (labelled in blue and yellow). Neighboring cells are mutually complementary.
14c: Four vortex cells have been marked on the lawn. These cells belong to different radii of the hose arc.



the liquid, in addition to material properties of the liquid, such as density and viscosity. Evidently, the chances of finding clearly delineated structures outside of the hose are favourable in the case of laminar flow.
In the short sections of the “Bächla” with a gradient (figure 4), the water was very turbulent, and the perceptible structures were not clearly discernible there.

4b: Concentric rings at a 90 degree bend

The experimental set-up is illustrated in figure 11a. For indicating the scale, a measuring stick has been placed beside the bend in the hose. The ring structures were observed and marked to the north-east of the bend. A tagged point was thus present for each ring; the position (11a, 11b) of this point was subsequently determined with a tachymeter (figure 6).
The experiments were performed in two series:

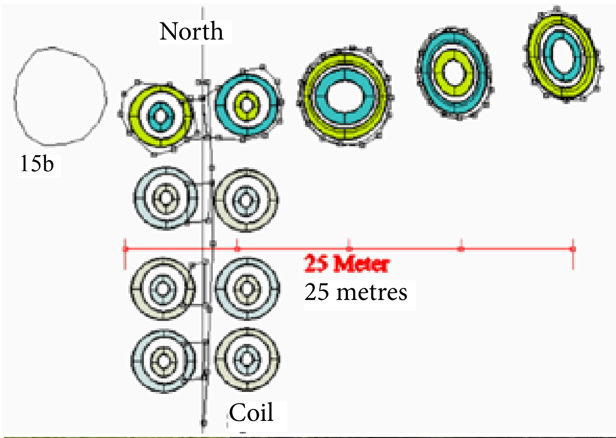
1. constant flow rate, variation of the bending radius and
2. constant bending radius, variation of the flow rate.

A definite dependence on the selected parameter values is evident from both series. The radii of the rings increase

1. if the bending radius is increased (figure 12) and
2. if the flow rate is decreased (figure 13).

4c: Vortex cells

If a gaseous or liquid medium flows in a straight line in an object (such as a pipe), or if an object moves in a medium at rest, vortices are generated by friction at the interface. During this process, a portion of the medium rotates along a circular path. The vapour trails from jet planes illustrate this phenomenon when the visible condensate from the steam indicates the position of the former vortices (figure 11d).



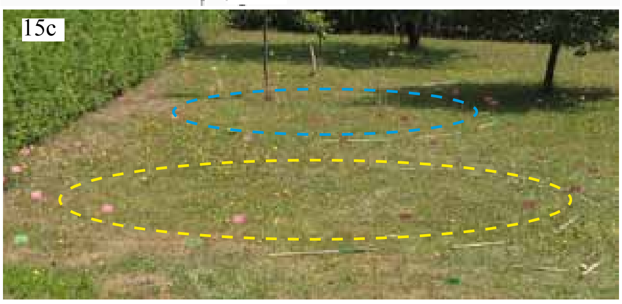


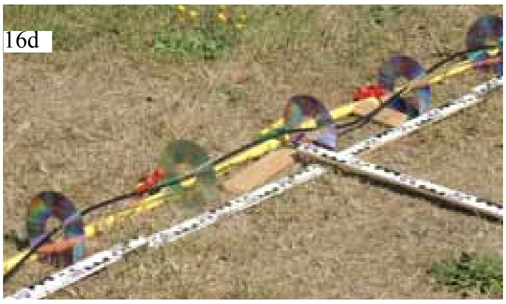
Figure 15: Structures associated with a water coil
15a: The axis of the coil is horizontal and points toward the north. Structures of large area occur symmetrically with respect to the axis if the water has flowed for a few minutes.

15b: Many points of the structure have been identified with reflector marks, and their position has been measured. The lines have been completed schematically.
15c: View of the three large vortex cells at the upper right with reflector marks and wooden rods

15d: Water flows vertically downward through a hose with an inside diameter of 1 mm. With this arrangement, four semi-planes which intersect the hose axis can be observed. (The semi-planes are marked with wooden sticks.) These semi-planes rotate slowly counter-clockwise about the axis of the hose. The period of rotation is of the order of minutes.

15e: If the hose is routed through a hollow metallic object (such as a copper pipe), this object acts as a barrier against the external structures of subtle matter. See section 4e.

Figure 16: Barriers against structures of subtle matter
16a, 16b and 16c: Washer, pipe brackets on a plastic hose: The two ends of the bracket are in electrically conductive contact.



16c: Five DVD's with a spacing of 50 cm on the black 6 mm PE hose

16c

The presence of obstacles in flowing water also results in recognizable deviations from laminar flow in the form of wave patterns (figure 11e). (With some measuring techniques, these vortices are employed, for instance, for determining the flow rate in a pipe. In the case of a vortex flowmeter, the number of vortices at an artificial obstacle per unit of time provides a measure of the velocity.)
The structures thus found consist of **concentric rings, on the one hand, and of radial elements** (with a pattern similar to that of a spider's web), **on the other hand**. Structures (figure 14b) along a radial line were first detected and marked, and subsequently measured with a tachymeter. Elements on the circular rings which had been detected by dowsing were then measured. At lower left in the figure, the blue dots and lines indicate the measured position of the hose arc D. The graduations belong to a metre grid.
The connecting lines between the points mark rectangular **cells, vortex cells**, in each of which two concentric hose-shaped elements rotate in opposite senses. These vortex cells are arranged in a checkerboard pattern in which the sense of rotation in the "white" squares is opposed to that in the "black" squares. This "checkerboard" extends over a distance of more than 30 m. The maximal size of the cells evidently depends on the dimensions of the hose arc (figures 12 and 13). The distance between neighbouring circles is a regular interval. With increasing distance from the centre, however, the area between two circular rings increases. Consequently, more cells are accommodated on a ring on the outside than on the inside. In the case of C, a transition zone is probably involved.
For instance, the observation that only four cells occur on ring A, as opposed to six on ring B, for the same aperture angle, may thus be explained.
A further experiment has been performed on the subject of vortex cells (figure 14c). In this case, only one cell each was selected and marked at a distance of about 10 m from the hose arc for different arc radii (R = 0.2 m; 0.4 m; 0.6 m, and 0,8 m). The corresponding edge lengths of the cells were 0.45 m; 0.58 m; 0.75 m, and 1.1 m. These cells evidently grow as the radius of the arc increases, and their size corresponds to about 1.4 times the arc radius.

4d: Water coil

Twenty-two turns of 6 mm PE plastic tubing were wound around a 50 mm length of domestic plastic pipe (figure 15a). The axis of the coil was horizontal and pointed toward the north. The resulting structures extended over a distance of many metres, far beyond the boundaries of the "research garden". Selected elements were identified with reflector marks, and their position was measured. These measured points and a few supplementary schematic features are shown in the ground plan (figure 15b). A regular pattern of **vortex cells** is present on both sides of the coil axis. The cells at the upper right have a diameter up to five metres. Sufficient space was available there for examining the internal structure and the different rotational sense of the tubular elements.

4e: Closed rings as barriers

If the hose is surrounded by closed rings of conductive material (figure 16), these rings evidently act as barriers against the structures of subtle matter which surround the flowing water. If several such barriers are set up with a regular spacing, the resulting **vortex cells** are arranged as squares in a checkerboard pattern on the left and right sides of the hose. The corner points of the cells are arranged in such a way that they coincide with the barriers.

4f: Flow of air in a straight pipe

Air flows through a hard plastic (polyethylene, HDPE) pipe with an inside diameter of 16 mm (figure 17a). The air is driven by a small fan for inflating air mattresses (figure 17d). The flow velocity is determined with the use of a small anemometer and a 40 mm plastic pipe as adapter at the end (figure 17b). Zones R1 to R3 are observed with this flow of air, too (figure 17a). The behaviour of the zones with variation of the flow velocity is similar to that observed

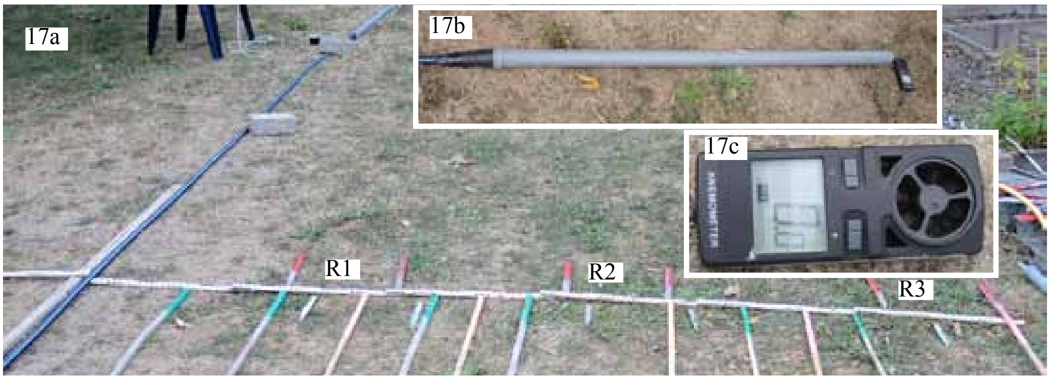
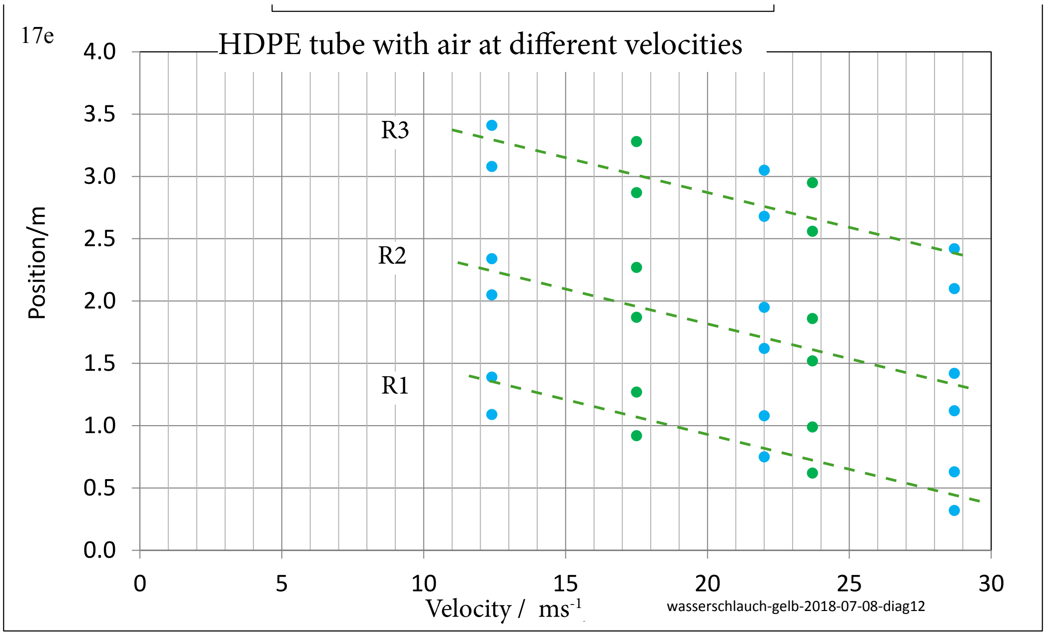


Figure 17: Hard plastic (PE) pipe with flowing air
17a: The inner and outer edges of zones R1, R2, and R3 have been correspondingly marked for different flow velocities. On the wooden sticks, the colour green indicates the highest velocity, and the colour orange indicates the lowest velocity.
17b: For determining the flow velocity, the end of the pipe is concluded with a section of 40 mm HT pipe.
17c: Anemometer

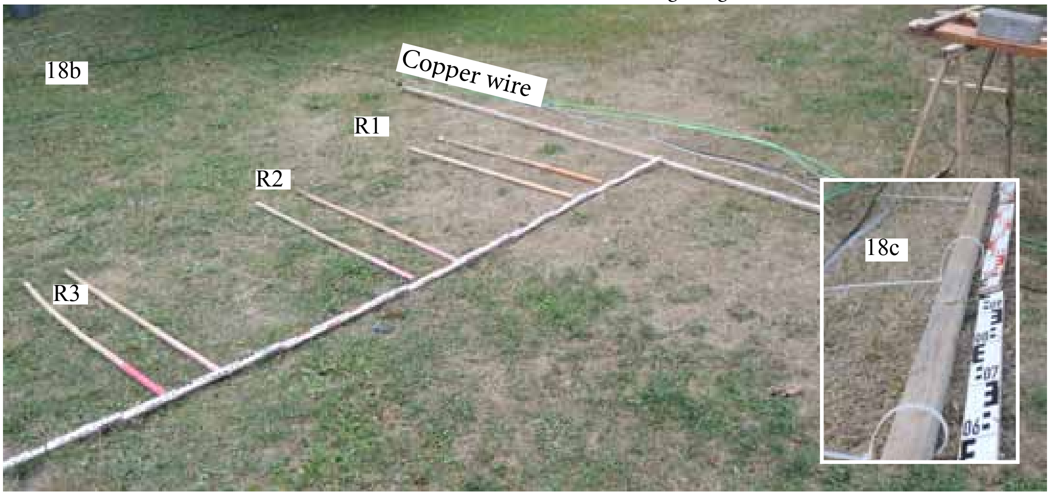
17d: Fan for inflating air mattresses with electronic unit for controlling the rotational speed

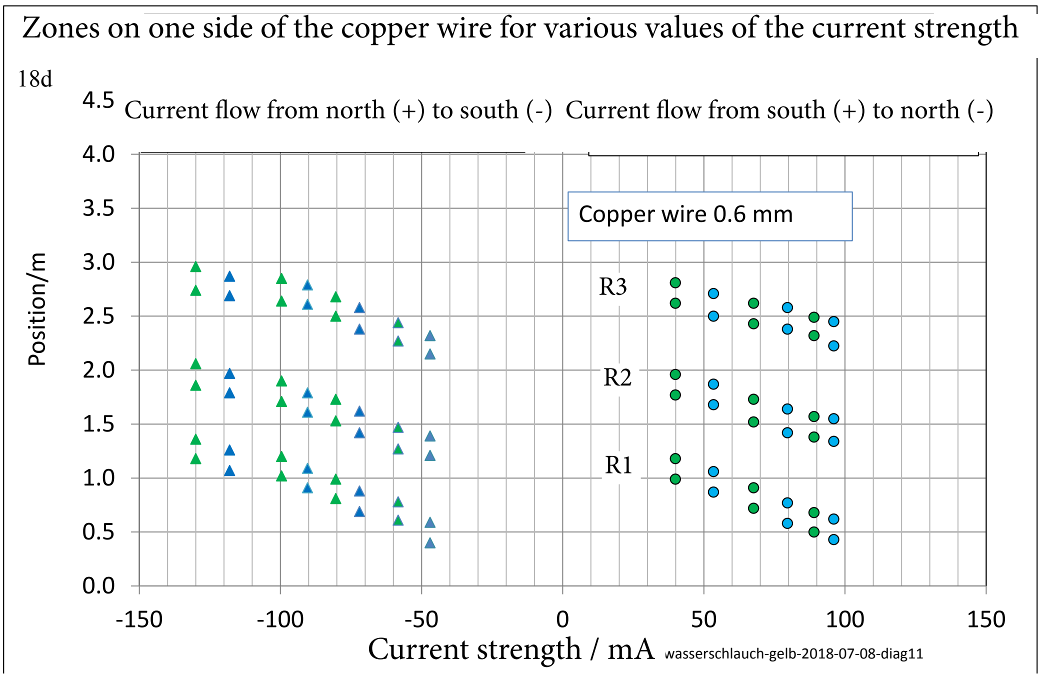


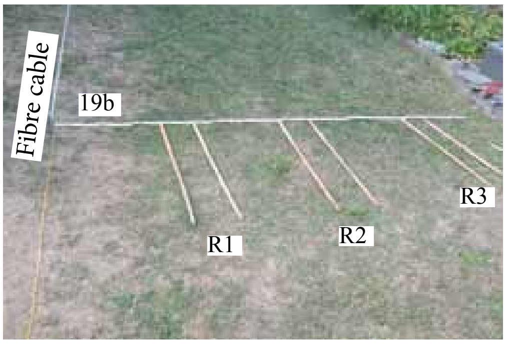
17e: Positions of zones R1, R2, and R3 with air flowing through a plastic (HDPE) pipe at different velocities

17f and 17g: Coil of 20 mm plastic (HDPE) pipe, left with flowing water, right with flowing air

Figure 18: A copper wire with a diameter of 0.6 mm lies on a wooden board in the north-south direction.
18a: Direct current up to 100 mA flows through the wire.
18b: The same structures, R1, R2, and R3, are observed as in the case of flowing water in a hose (figure 9a). The position of the zones changes as the current strength varies.
18c: Non-conductive rings (cable collars) act as barriers and generate vortex zones as in the case of water.
18d: Dependence with both polarities; left: minus in the north, right: minus in the south, each at the left and right edge







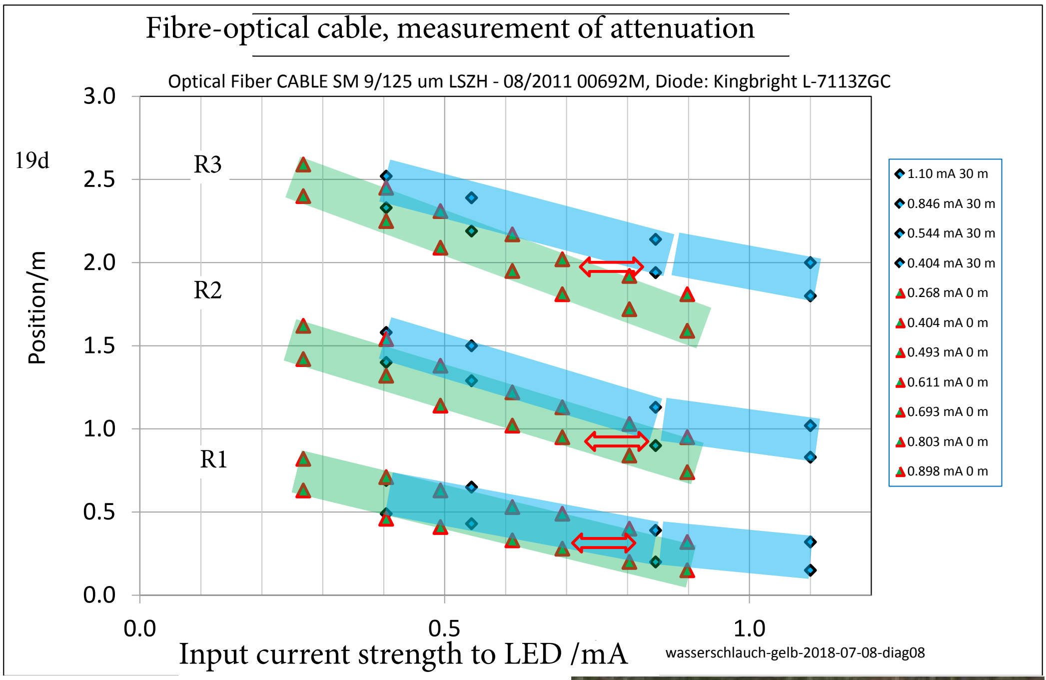


Figure 19: Zones associated with a fibre-optical cable, left and right edge, respectively
19a: Optical Fiber CABLE SM 9/125 µm LSZH - 08/2011 00692M, green diode: Kingbright L-7113ZGC
19b: With the fibre-optical cable (left), the same zones, R1, R2, and R3, are generated as in the case of a water hose.
19c: Fibre-optical cable with LED, current adjustment by means of the resistor chain
19d: The zones are displaced toward the fibre-optical cable if the intensity of the light supplied to the cable is increased. The luminous intensity can be adjusted by adjusting the input current to the LED. The luminous intensity in the glass fibres decreases with increasing distance. The two curve systems (green and blue) correspond to positions 30 m apart along the fibre-optical cable.
19e: An insulated copper wire (door-bell wire) and a fibre-optical cable have been wound around the water coil. If current is allowed to flow, the same vortex structures are established as in the case of flowing water (figure 15). The result is the same with the fibre-optical cable.

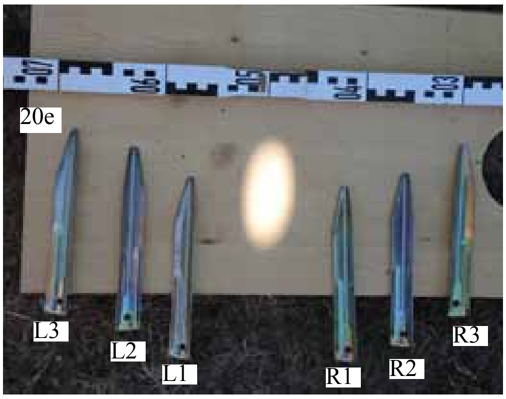


Figure 20: Direct and reflected sunbeam
20a: A shaving mirror is positioned on the ground. The sunlight is incident on the planar side of the mirror.
20b: The same structures can be observed along the light beam as in the case of water in a hose.
20c: If the light beam is obscured in the middle, two partial beams result, and overlapping structures are generated.
20d: In the shade of a suitable object with an aperture (such as a table with a hole), a direct beam can be generated.
20e: Three zones are present on both sides of the beam, marked with tent pegs.

with water. With increasing velocity, the zones move closer to the pipe (figure 17e).

4g: Water coil, air coil

A coil with 25 metres of plastic (HDPE) pipe with an inside diameter of 20 mm is positioned in such a way that the axis of the coil points horizontally toward the north. During the first partial experiment, water flows through the coil at a velocity of 2.7 cm/s (figure 17f). This velocity corresponds to 0.5 litres/minute. During the second phase of the experiment, air flows through the coil at a velocity of 10.8 m/s (figure 17g). In both cases, vortex zones are observed, as illustrated for the cylindrical coil in figure 15. These zones extend over a distance up to twenty metres. The combination of flowing water and HDPE exerts a pronounced effect on the human body. **Prolonged presence** in the area near the plane of the coil, even at a distance of a few metres, **is not advisable**.

4h: Copper wire with direct current

If direct current (50 to 100 mA) flows through a bare copper wire (diameter: 0.6 mm), zones similar to those observed with flowing water are generated (figures 18a and 18b). If the current strength is varied, the zones are displaced laterally (figure 18d). A surprising feature, however, is the observation that the **direction** of the displacement depends not only on the absolute value, but also on the **sign of the current**.

In the case of water, the zones are displaced inward with increasing flow rate. With direct current, however, the zones move inward with increasing current strength in one direction (positive pole in the south), whereas they move outward with increasing current strength in the opposite direction (positive pole in the north). If the values for one direction are plotted with a positive sign and those for the opposite direction are plotted with a negative sign, the observed behaviour is the same as that for water. An increase in current strength (as seen with the correct sign) results in a decrease in the spacing. The Earth's magnetic field may possibly be a cause of this asymmetry.

If the copper wire is surrounded by an insulator (such as a cable collar), vortex cells are generated as in the case of water (experiment 4e).

Evidently, the electric current also generates structures of subtle matter in the surrounding region, as already described ([4] figures 19 to 28).

4i: Fibre optics

As already indicated ([4] figure 3), structures of subtle matter are also established in the surrounding space by light in a fibre. Zones

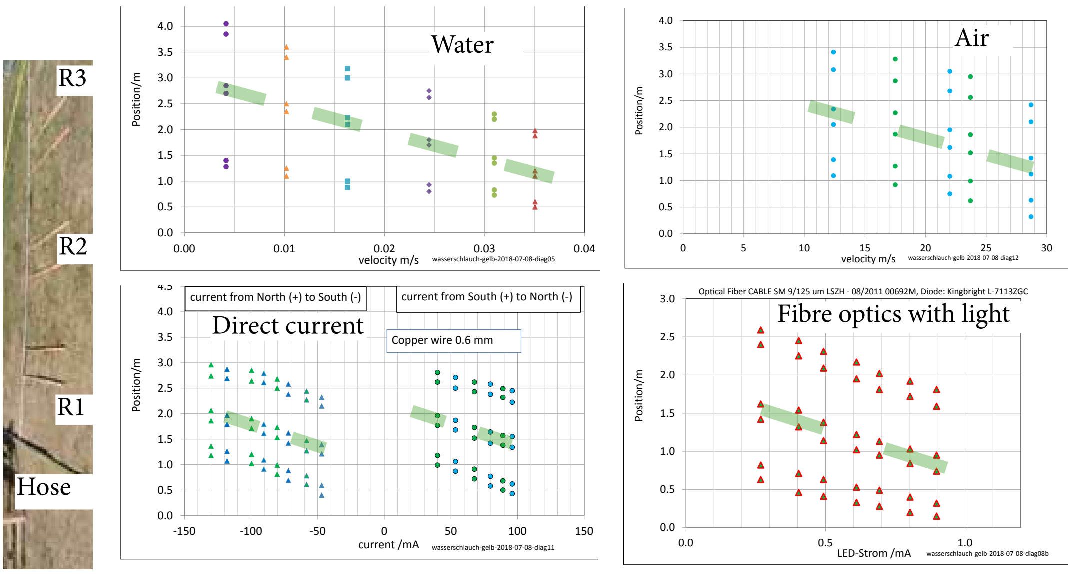


Figure 21: Comparison of properties for the zones generated with water, air, direct current, and light (see figures 9b, 17e, 18d and 19d)

Ähnliche Zonen bei Wasser, Luft, Gleichstrom und Licht

similar to those generated by flowing water are formed, if the light input to the fibre is comparatively weak (figure 19b). For the experiment, a small light-emitting diode (figure 19c) was fastened to the end of a fibre 50 m in length (figure 19a). The brightness in the fibre can be adjusted by adjusting the input current to the diode. In this case, too, the zones are displaced inward toward the fibre as the luminous intensity increases (figure 19d). In the figure, the positions of the zones are plotted for two sites on the fibre which are 30 m distant from one another. For this purpose, two sites were marked on the fibre for bringing the respective section of the fibre to the place of observation. As indicated by the curves, the intensity is low at the 'downstream' end of the fibre.

Measurement of the attenuation in a fibre

Since the optical fibre is not ideal, it absorbs some of the light which it receives, and the intensity therefore decreases toward the end. Precisely this attenuation (damping) per unit length of the fibre can be determined from the positions of the zones without contact. The length of the fibre was 50 metres. For determining the attenuation, the positions were first measured at one site at the beginning, and then at a site 30 m distant. From the two curve systems (figure 19d), the extent to which the lower curve must be shifted right in order to restore the zones to the original positions can be determined for the larger distance. (This corresponds to the value by which the diode input current must be increased.) Result: The red arrows correspond to a value of approximately 20 per cent for the attenuation at a distance of 30 m along the fibre.

4j: Light beam with sunlight

If a shaving mirror is placed on the ground on a clear sunny day in such a way that the planar side is illuminated by the sun (figure 20a, 20 b), a light beam can be generated from the reflected light. If the mirror is appropriately oriented, one can walk along the beam and investigate the perceptible structures. As in the case of water flowing through a hose, various zones and double helices can be observed during this experiment, too. If a section in the middle of the mirror is obscured, for instance, with a piece of wood (figure 20c), two parallel partial beams are produced. The resulting subtle structures overlap and thus generate an entirely different image.

The experiment with a non-reflected light beam is somewhat more elaborate. A garden table with a hole in the middle for accommodating a parasol was available for the purpose. If the sun is not too far from the horizon and the position of the table is sufficiently high, the light beam can be followed over a distance of several metres (figure 20d). The zones thus detected, L3 to R3, are laid out with tent pegs on a wooden slab (figure 20e).

4k: Water coil with an electric current conductor and an optical fibre

An insulated copper wire (door-bell wire) had already been wound around the existing water coil (experiment 4d). In addition, the optical fibre was also wound around the water coil. As in the case with flowing water, corresponding vortex cells occurred in those cases, too. At the appropriate setting of the current or brightness, the size of the cells agreed with the dimensions indicated in figure 15b.

4l: Water pipe burst

With the appropriate knowledge of vortex-cell generation and structure (figure 6), similarities with the structures found during a water pipe burst in November 2016 can be explained. At that time, the author had detected perceptible structures while the excavator was still in operation and measured their positions with a GPS receiver (figure 22). Radial elements and rings were observed at this stage. After completion of the excavation work, it was obvious that the site of damage was located precisely at the midpoint of the system. With his localization methods, a professional leak finder had indicated a position which deviated from the exact position of the leak in the 100 mm pipe by about 1.5 m.

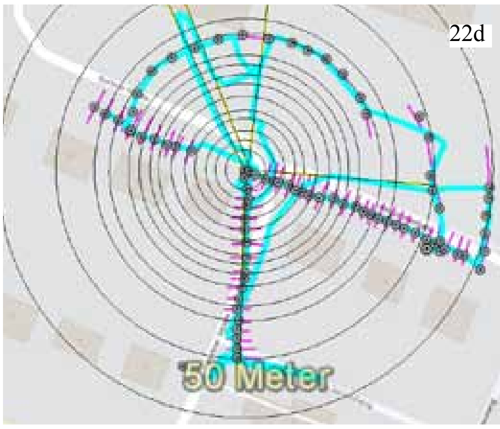


Figure 22: Water pipe burst in Clausthal-Zellerfeld, 30th November 2016
22a: The 100 mm pipe is located in a street curve.
22b: As indicated by a network superintendent, the burst site should be located in this area.
22c: The excavator was still digging a deep hole in rocky material here. The defective pipe section was supposed to be located here. Unfortunately, the site of damage was actually located farther to the right (below the rectangle).
22d: At the beginning of the excavation work, the author had walked around the site of damage and detected perceptible structures, which he recorded with the aid of a GPS instrument. At the time, the pipeline was still in operation, and water was escaping from the leaking site. Perceptible radial elements and rings were present, and the author tracked these structures. The burst site was located exactly at the centre of these structures.

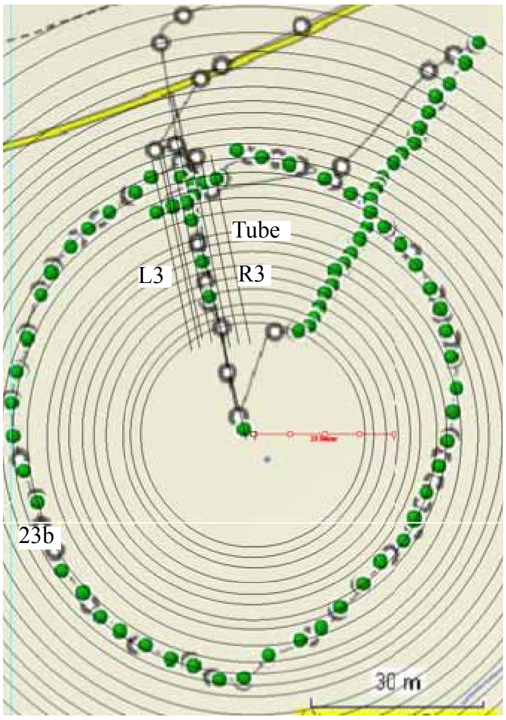


Figure 23: Well for drinking water, about 200 m deep
23a: A 100 mm pipeline extends from the well in the direction toward the camera.
23b: The positions of a few elements of the structures were recorded with the aid of a GPS receiver. Circles and radial elements were present. The pipeline is routed upward. Three perceptible zones, designated as L3,L2,L1 and R1, R2, R3, are present on the respective sides of this pipeline. The entire inspection procedure lasted 11 minutes. The ring structure thus detected was not exactly circular. The circle which was traced during the tour over the freshly plowed field was certainly not always the same one.

4m: Deep well
Structures with radial elements and rings can also be found near deep wells with vertical pipes. In addition to the vertical pipe, the object illustrated in figure 23 is equipped with a horizontal pipe-line (diameter 100 mm) for drawing water. The three zones, L3-L1 and R1-R3, are present on the left and right sides of this pipe. Intersections with circular rings are present on the radial elements. With sufficient practice, one can also walk along a circular arc around the centre.

Summary

- The physical properties of subtle matter around flowing water or air in a hose, direct current in an electrical conductor, and light in a glass fibre or a beam of light can be investigated with very simple equipment.
- The structures thus detected are similar for all objects (figure 21).
- The geometrical dimensions of the structures are functions of easily adjustable parameters.
- Since the pertinent physical laws and relationships are not yet known, however, the results still appear to be highly complicated. The present material should constitute a challenge for theoreticians, who should attempt to find conclusive or at least plausible explanations.
- Much further research is still necessary in this field.

Outlook
Eight years ago, an application was filed with the Forschungskreis für Geobiologie Dr. Hartmann e.V. for financial support of the project "Flowing Water and Alternating Magnetic Fields". At that time, no one realized that a door was being opened to a highly comprehensive and productive field of research.
The author himself had experienced the manner in which flowing water in a cooling system can adversely affect one's blood pressure [8]. Delivery and return lines were constructed of plastic (HDPE) pipe (figure 24) and were located at a distance of about 3 m from his desk at Clausthal University of Technology. He himself had been present and had actively participated in the installation of the facility without realizing the possible unpleasant consequences.
During the initial work session with experienced dowsers in the lecture hall, simple experiments were performed with **garden hoses, water coils, electric cables**, etc. After a short time, several of the visiting radiaesthetes had discovered the first phenomena.
At that stage, however, the experimental set-up was too complex for reaching physical conclusions from these preliminary experiments.
Nevertheless, the author has dared to return to this topic eight years later. This time, however, he has employed only a single water hose laid out in a straight line on the ground, and the situation is now quite different. During the interim, many experiments have been performed, not only with water, but also with various other objects. The services of biological sensors were employed. Biological sensors are persons with extended perceptive ability, who can detect effects and relationships through their observations by feeling, discerning, and even "seeing". These effects are associated with the variation of a simple physical parameter, such as velocity, electric current strength, or pressure.
A decisive milestone was attained with the **vacuum experiments**. As indicated by the results of these experiments, **noble gases** such as argon in the air act as transmitters or "mediators" for the propagation of **perceptible structures**. If, for instance, a water coil is placed in a glass vessel and the air, including the argon, is pumped out, the perceptible structures disappear. That is, no structures are observed if these transmitters are absent. Even during the evacuation process, the progressive shrinkage of existing structures and their final dissolution were recognizable.
In analogy with the results of weighing experiments performed by **Dr. Klaus Volkamer**, a new conceptual model gradually evolved: In accordance with this model, we

are surrounded by a further, invisible type of matter. This matter is coupled with real matter by hitherto unknown mechanisms. The term **"subtle matter"** was coined by Volkamer [11, 12]. How can this model be tested?

In Part 3 [10], the effect of noble gases on the size and geometry of the structures around **static objects** has been described in detail. A few experiments were also performed with rotating objects.

In the present series, experiments have been performed with **moving media** such as flowing water, electric current, or light in a glass fibre.

The results of all experiments have shown that the invisible matter cannot be seen, of course, but that its existence can be demonstrated by means of its traces. Traces of this kind are more or less comparable with the tracks of cosmic rays, which were initially observable only in a cloud chamber. Efforts for developing appropriate detectors began afterward.

Among the results of the present experiments and also of earlier research [4], one observation is especially surprising: Flowing water, flowing gas, electric current, and light in a glass fibre generate very **similar structures in subtle matter**. For this purpose, however, optimal conditions for observation must be ensured. The aforementioned parameters for the flow of water, electric current, or luminous intensity were well suited for the generation of structures at a distance of a few decimetres. Such structures can be easily observed by sensitive persons.

Matter is not limited to what is visible. During decelerated or accelerated motion, as well as with **vortices**, pronounced effects occur in the surrounding space, even at very low energy. These effects are not restricted to highly energetic phenomena, such as Bremsstrahlung and x-rays in cathode-ray tubes. As a rule, such effects influence the human body (blood pressure, see preceding).

Our experiments unambiguously demonstrate the existence of some kind of invisible matter. This result is especially well demonstrated by the observations with the barriers (experiment 4e, see also figures 18 and 46 in [5]). On a closed ring of suitable material, the subtle matter which follows the flowing medium is deflected. In the case of water, the ring must be an electrical conductor (figure 16b) and in the case of an **electric current**, it must be an **insulator** (figure 18c). Long before our times, people have believed in the existence of the invisible. The Nicene Creed from the year 325 begins with the following words: **"I believe in one God, the Father Almighty, the Creator of heaven and earth, and of all things visible and invisible..."**

With a few experiments in [2] (for instance, weight variation induced by thoughts, figure 9), an association has been established between **matter and consciousness.** This way of thinking is new, of course, but it provides an approach for explaining effects of technology on humans in a non-classical manner.

Key questions

The numerous experiments which we have performed have yielded an apparently confusing abundance of information. However, some of the observed structures or properties occur very frequently and repeatedly, and thus suggest that **natural laws** and relationships are involved here. In the future, further experiments, such as those involving the barriers, will continue to be necessary for providing answers to the key questions concerning the nature of subtle matter.

Acknowledgements

At this point, the author wishes to thank all of those who have actively participated in the experiments in the course of the past years. In various combinations, these people have continuously helped to provide new information and results, as well as topics for posing new questions. In particular, Werner Auer, Andreas Schumacher (figure 25 in [9]), and Gertraud Engelsing deserve special mention. Without their various extended perceptive abilities, many structures would not have been discovered at all. Precisely persons with "seeing" abilities are more sensitive than normal dowsers, and their services are thus extremely important. Furthering of such abilities by the research association would be a desirable objective. Without the financial

support of the Forschungskreis für Geobiologie, this comprehensive project would never have been feasible. We wish to express our sincere thanks to the Association.

Expensive instruments are perhaps not the only means of improving our understanding of nature. Simple questions about nature, coupled with simple experiments, and well trained people with extended abilities, such as radiaesthetes, are necessary for this purpose.

Author's address:
Prof. Dr. Friedrich H. Balck
Lindelbergweg 15
D 91338 Igensdorf
www.biosensor-physik.de

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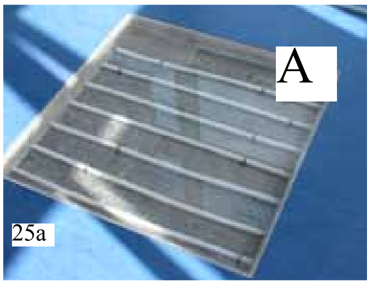
Appendix

Figure 24: Delivery and return lines with cooling water: The consumer is located on the floor above, and the cooling system is located in the cellar. The pipes consist of hard plastic (HDPE), 50 x 4.6. The flow of water in these pipes caused stress and thus an increase in blood pressure for the person in the adjacent office. The electric cable next to the pipes and the hard drawn plastic increased the intensity of the perceptible structures considerably. http://www.biosensor-physik.de/biosensor/kuehlwasser.htm

Figure 25: In this under-floor heating system, several circuits have been laid beside one another. At the bends and at the points of contact (marked in yellow), more intensely perceptible structures are present. These structures affect the human body.
Figure 25a: For the purpose of demonstration, one section of the facility has not been covered with floor finishing (screed topping). Only a slab of Plexiglas® has been placed over the exposed area. This plastic amplifies the intensity of the perceptible structures considerably. http://www.biosensor-physik.de/ biosensor/elektrosmog.htm#01-08



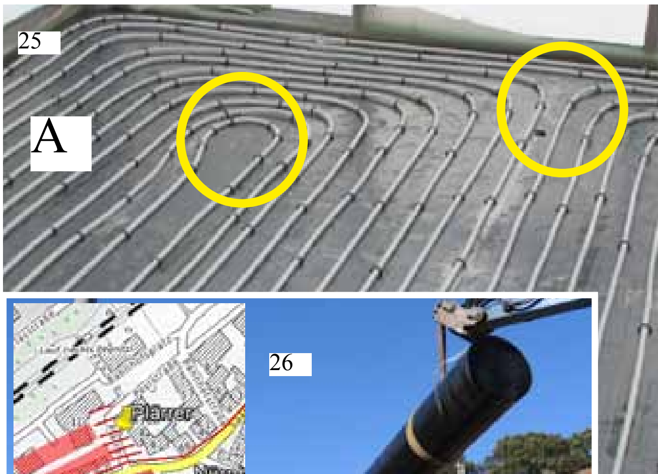


Figure 26: Remediation of a cast-iron water-supply pipe-line: The pipe-line is about 100 years old, has a diameter of about 1 m, and is located under the street at the centre of the community, 49°30‘47.00“N 11°16‘55.25“E. It has been lined with a plastic (HDPE) pipe with a wall thickness of 4 cm. After the remediation, the perceptible structures are considerably more intensive and extend laterally over a distance of more than 50 m. (www.opentopomap.org)
See figures 02-19 in:
http://www.biosensor-physik.de/biosensor/ wasser-ader.htm#wasser-ader

Figure 27: Reproduction of the experiment with crossing aquifers under the influence of electrical devices (figure 10 in [4]):
At the crossing of the hoses, the effect of the electric smog from the water in the green hose is coupled with the water in the black hose. If a test person stands on the black hose, the influence of the electric smog from the green hose is thus much more intensive. In this simple construction, two hoses (5 mm inside diameter) were placed at different heights. The flow rate and the pressure were low. The perceptible effects which are caused by the crossing and the electrical devices are similar to those described in [4].