FLOWFORM WATER RESEARCH

1970 – 2007

A Collation of Research and Related Ideas

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FLOWFORM
WATER RESEARCH
1970 – 2007

Part Four
Research on Flowform Effects

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Research on Flowform Effects

"The whole water circulation has tremendous significance for the life of the earth. Just as the human organism could not live if it did not have its blood circulation, so would the earth be unable to live if it did not have its water circulation."

Rudolf Steiner 1861-1925

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Flowform Phenomena and Rhythm Research

Rhythmic phenomena are fundamental to all life processes. A multitude of rhythms can be generated in a Flowform cascade, all with different frequencies and qualities of movement, dependent upon the surfaces over which the water is allowed to flow. Some results of the rhythm analysis work carried out so far indicate that processes are occurring that are not yet understood. For example, there appear to be some low frequency components of the rhythm near the inlet that are of a magnitude comparable to the fundamental Flowform water pulsing. We also need to understand, other rhythmical components that are different for asymmetrical designs. But we know by experience that the rhythmic patterns can be influenced by surface and shape criteria.

Rhythms and Cosmic Influence

All organisms exist within a rhythmical context (periods of waking and sleeping, for instance), and all plants are subject not only to annual and seasonal, but also to diurnal rhythms. Relating forms and rhythmic patterns to cosmic influences and rhythms is an important aspect of the work.

There is evidence that the effects created by rhythmical treatment depend on the time of day when it is applied (Hagel 1983), as well as upon the lunar cycle (Schikorr 1990, Loyter 2005, see Part 4). Rhythmical treatment during an eclipse appears to have a growth inhibiting effect upon the water (Wilkes, personal communication). This suggests that Flowform water treatment is not only effective in isolation, but is acting as a kind of sense organ for cosmic influences. This needs further investigation over extended periods of time to account for other planetary rhythms.

Following the work of George Adams, Lawrence Edwards and Nick Thomas, the use of projective geometry for this purpose is being studied (Edwards 1982, 1993, Adams and Whicher 1979). Links to the work of investigators like Viktor Schauberger may also become possible. The use of mathematically designed Flowform surfaces, especially in connection with shape analysis, may also be viable as a result of these developments. The further progress in rhythm and shape analysis will depend on the theoretical insights gained in a mathematical and geometrical context.

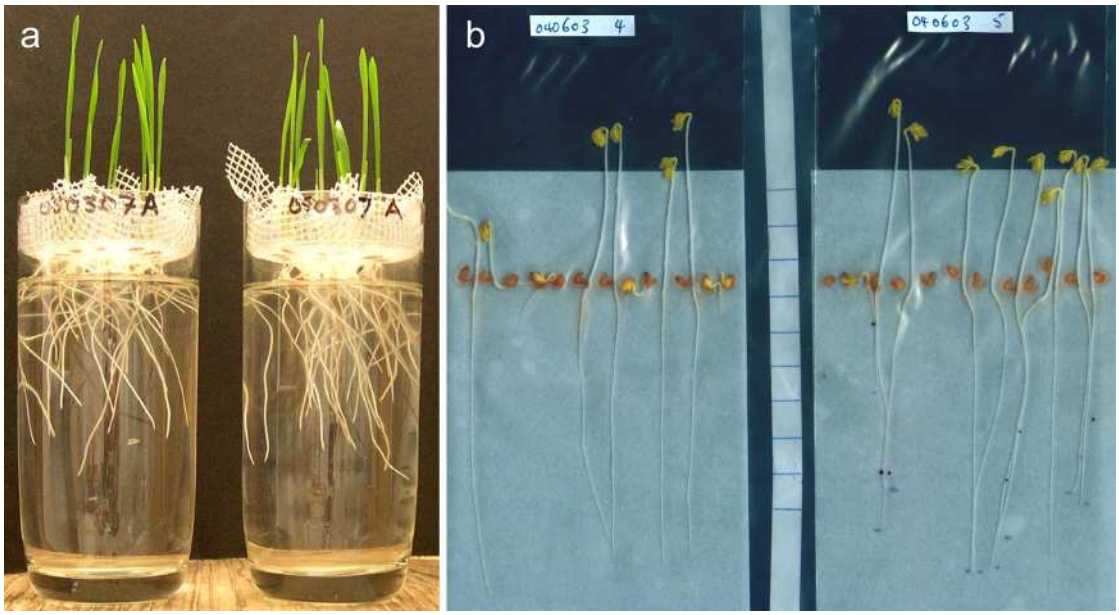
Wheat and Cress Growth Experiments

Flowform water has been tested experimentally on plant growth and compared with control water that is oxygenated to the same degree but otherwise untreated. Two systems have been established to conduct experiments under controlled conditions.

Wheat seeds are placed equidistantly on a mesh that is fixed inside a glass containing the water sample. The glass is placed on a turntable and rotated slowly for 10 days. The roots grow through the mesh into the water (Fig. 20a, also see part 4.3). The seedlings are photographed and the length of shoots and roots can be measured either manually or with a computer program.

Cress germination and growth experiments are carried out with a method developed by Hiscia Cancer Research Institute in Arlesheim, Switzerland. Cress seeds are lined up inside a sealed plastic envelope along a sheet of filter paper. To each envelope the chosen water sample is added and the sealed envelope is hung in a light-tight box, where the seedlings are left to grow for four days with constant humidity and temperature. After this period the results are scanned and records of the growth are measured with software developed for that purpose (Fig. 20b, for further details on the cress growth method, see part 4.1).

Fig. 20: a Wheat seeds germinating on a mesh in a glass containing the water sample, **b** C**ress seeds germinating** on filter paper inside a plastic envelope



Crystallisation Method

Crystallisation with copper (II)-chloride was first developed by Dr. Ehrenfried Pfeiffer - following a suggestion given by Rudolf Steiner – as a sensitive method to test specific biological substances, such as plant extracts and blood (Pfeiffer 1931, 1935, Nickel 1968). Pfeiffer observed that the crystallisation pattern of copper chloride, which as pure metal salt has a rather disordered structure, becomes strikingly coordinated and restructured under the influence of biological substances. By describing the texture,

comparing various patterns and establishing specific types, these pictures can be evaluated morphologically (Fig. 21).

Examining different stages of development in bean, radish, rape and cress, Magda Engqvist noticed that as the seedling further develops, the crystallisation pattern becomes more branched and complex. In contrast, aging processes result in a loss of coordination in the typical crystallisation pattern. Also environmental growth factors, such as light and shade, as well as various soil conditions (loamy, sandy, calcareous) modify the crystallisation pattern with respect to richness of needle formation, branching of the bundles, and ratios between the inner, middle and outer zones of the picture (Engqvist 1970).

Fig. 21: Crystallisation dishes with Flowform water (above left), Flowform water treated inside a geometric form (above right), tap water control (below left), and crystallisation chamber (below right)

According to Selawry (1957), the crystallisation images arising from plant extracts can be classified in four fundamental types: Root, shoot, leaf and flower type, each one showing a distinct crystallisation pattern.

It has been emphasized that it is important to harvest the plants at the same time of day, preferably in the morning, since all plants are subject not only to annual and seasonal, but also to diurnal rhythms (Selawry 1957).

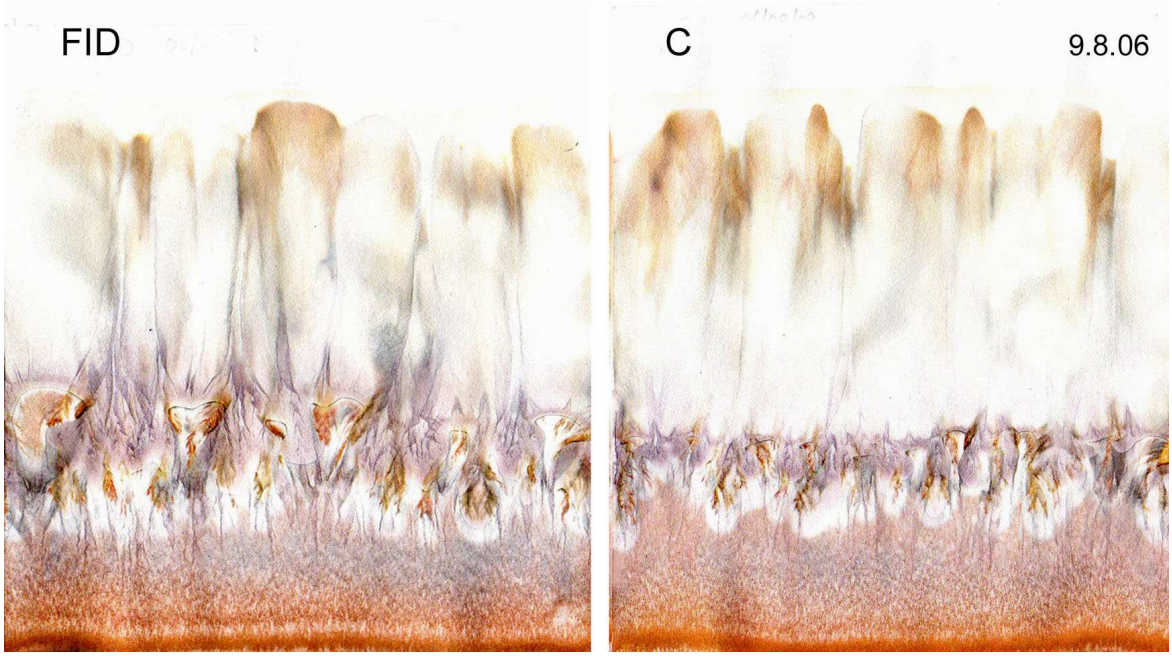
The observations suggest that the more vigorous and alive the substance of the sample is, the more its formative influence overcomes the particular pattern of the copper chloride itself.

It can be concluded that copper chloride crystallisation is a sensitive qualitative method to detect growth, ripening and decomposition processes in plant substances, a range of environmental conditions, as well as being used as a diagnostic tool with blood samples.

Capillary Method

Eugen and Lily Kolisko in the Biological Institute of the Goetheanum, following a suggestion given by Rudolf Steiner in connection with their studies of plants, developed the Capillary Method in the 1920's. These authors discovered that they needed to combine the action of metallic salts with the specific action of vegetal extracts to generate informative images (Kolisko & Kolisko 1978).

Fig. 22: Capillary Method with Flowform water rhythmically treated within a geometric envelope (FID), and untreated water as control (C)



Capillary Dynamolysis ('Steigbildmethode' or 'Rising Pictures') is a chromatography method where the plant extract or water sample is allowed to rise vertically, by capillary action, through a special cylindrically shaped chromatography paper (Fig. 22).

Through the addition of specific diluted metal salts (silver nitrate and ferrous sulphate) rising through the extract after it has dried, coloured patterns appear on the paper characteristic of the extract and the type of treatment. For this reason capillary dynamolysis is known as one of the picture forming or imaging methods. These patterns are read to reveal information about the properties and qualities of the extract or water sample (Barker 2005).

In blind experiments, Tingstad demonstrated the sensitivity of the capillary method by showing differences in the quality of carrots regarding the use of compost and biodynamic preparations versus mineral fertilizers, whereas none of the traditional quality investigations showed significant differences between the fertilizer treatments (Tingstad 2002). The capillary method was also used to demonstrate the influence of moon phases and solar eclipses on plant saps (Engqvist 1977, Fyfe 1967).

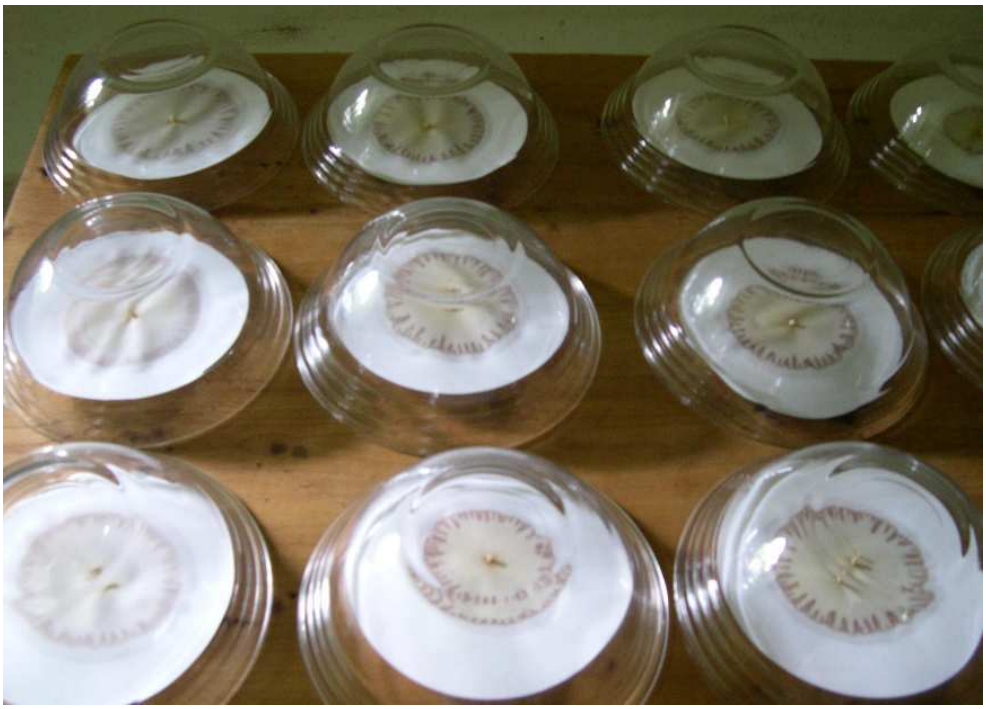
The capillary and crystallisation methods have been used routinely at the Healing Water Institute as a complement to quantitative analysis (Figs. 21 and 22, also see part 4.3).

Round-filter Chromatography (Chroma Method)

The microbiologist, biochemist and farmer Ehrenfried Pfeiffer spent several years of pioneer work and research developing 'Round-Filter Paper Chromatography' into a practicable test method. This is a method related to capillary dynamolysis, with the difference that patterns arise from the centre of a round disk of filter paper placed horizontally into a glass or Petri dish (Fig. 23). Solutions of silver nitrate and sodium hydroxide containing the plant extract are allowed to rise with the help of a paper wick and spread out over the disks of filter paper.

Chromatographs in general can help to predetermine the need for further analysis, and they can assist in getting a more complete picture of soil qualities. However, the interpretation of chromatographs requires experience and a sufficient supply of standards for comparison. Each type of soil needs its own standard series, just as plant/food chromatographs require a standard series for each plant or food type.

Fig. 23: Experimental setup for round-filter chromatography (by Uwe Gier at the Goetheanum Lab, Switzerland, Dornach)



Drop Picture Method

The patterns that arise when drops of a liquid fall into a larger quantity of the same or another liquid have long been of interest. One such form is the vortex ring, which was first described by Rogers in 1858 (see Smith 1974). These rings appear as the drop strikes the surface of a liquid and begin to descend (This can easily be made visible with droplets of ink descending in water). After a short period, the descending ring becomes unstable and splits into a number of smaller rings, which in turn may split up as well. Depending on the falling speed, drop size, temperature and other parameters, other forms may arise which strongly resemble organic life forms (Hatschek 1919, D'Arcy Thompson 1942).

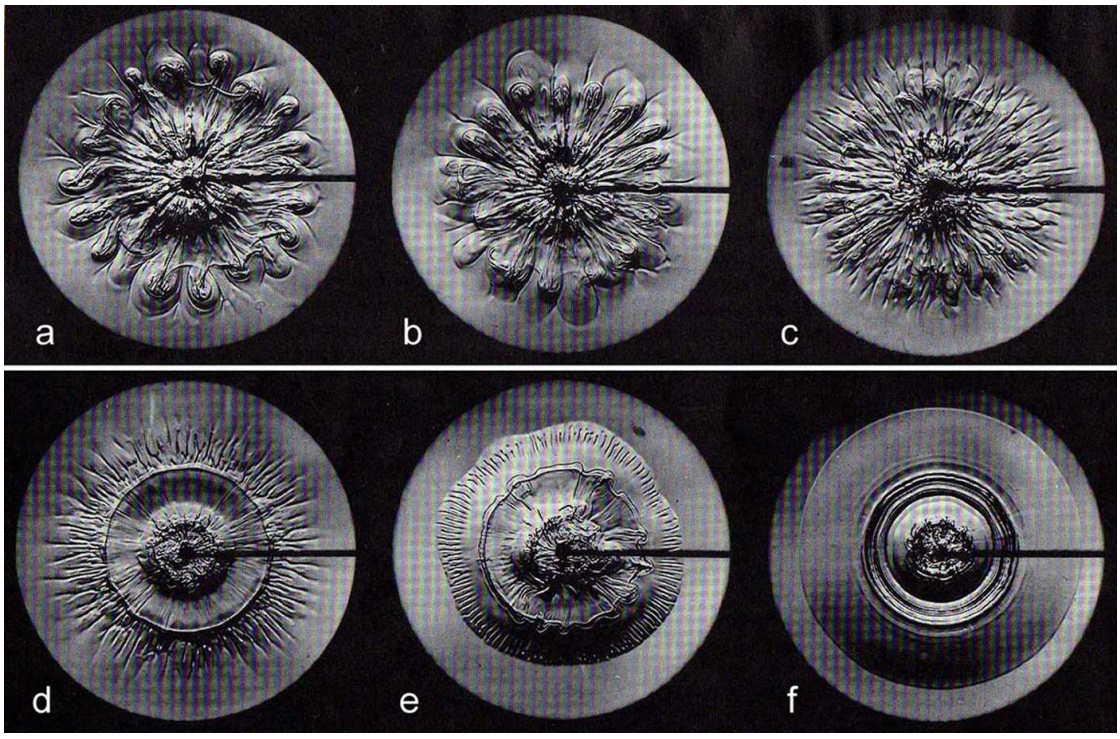
A striking result of these findings is the high sensitivity of the liquid forms to parameters such as density (Hatschek 1919), fall height of the drops (Chapman and Critchlow 1967, Thomson and Newall 1885), viscosity (Hatschek 1919, Thomson and Newall 1885), surface tension and others. This sensitivity of interfaces, and thus of the associated patterns and forms which they enclose, to the physical conditions of the system, has been utilised as a means of testing the quality of drinking water and water in general (Schwenk 1967).

The drop picture method was developed by Theodor Schwenk, based on experiments done by L. Kolisko, and the parameters involved, such as drop height, layer depth, temperature and viscosity, were studied in some detail ever since (for example Jahnke 1993, Schwenk 1967, 2001, Smith 1974, 1975, Wilkens et al. 2005).

In the drop picture method, the sample liquid, such as a water sample or plant extract, is mixed with glycerol to form a thin layer in a glass dish. Pure distilled water is then allowed to drop into the glycerol/water mixture at a frequency of approximately 1 drop per 5 seconds. The resulting patterns are made visible as density gradients and can be correlated with the quality of water (Fig. 24). According to Schwenk, this method may also be used for testing pharmaceutical preparations as well as mineral springs, for examining the influence of different materials coming in contact with water, and in tracing the course of pollution in rivers (Schwenk 1967).

We are currently setting up the drop picture method at the Healing Water Institute, which may help in determining the influence of Flowform rhythmical movement.

Fig. 24: Typical patterns arising in Drop Picture images. **a** variform, **b** single leafed, **c** ray-like, **d** radiating outwards, **e** radiating inwards, **f** disc-like (W. Schwenk).



Quality and Properties of Flowform Water

Research ongoing for many years has examined to what extent Flowform induced rhythms and figure eight flow patterns change the qualities of the water stream that runs through them. Apart from their aesthetic qualities, Flowform cascades do appear to have significant ecological and environmental applications and effects.

A comparative study undertaken by Dipl. Phys. Christian Schönberger and Prof. Christian Liess in Überlingen, Germany, on research articles about Flowform technology indicates that the qualities and properties of water, which is running through them, are altered (Schönberger and Liess 1995). Permeated with rhythmical movements, Flowform-treated water not only becomes highly oxygenated, but also supports rhythmic biological regenerative processes more intensively (Wilkes 2003).

Water quality is generally tested for its chemical condition and this is seen as the main quality issue by western science, along with water's organic content. However modern scientific research is re-opening the concept of energetic quality via material physics studies of informational frequency.

It is precisely this concept of life supporting quality, as well as water's chemical and organic content, that has been the long-term interest of the Healing Water Institute and its antecedents going back to the 1920s.

Oxygenation, Organic content and pH

The effectiveness of a system of wastewater treatment is frequently measured using the following parameters:

- **Dissolved oxygen:** In water with high levels of organic compounds it is likely that dissolved oxygen will be depressed (Tebbut 1992). For biochemical oxidation to occur there must be sufficient aeration that can be measured by the concentration of dissolved oxygen present in the water.

- **Biochemical oxygen demand**: (BOD) can be used as an indication of the concentration of organic compounds in water (Tebbut 1992). Therefore, by measuring the change in biochemical oxygen demand it is possible to determine if the amount of organic material is being reduced.

- **Faecal coliforms:** are an indicator of bacterial and other pathogenic contamination.

In 'The Channon' in New South Wales, Australia, four test runs in a Flowform system receiving communal laundry water showed the *biochemical oxygen demand* was reduced from an average of 424 to less than 20 mg/l over a 105 min period. Within this period, *faecal coliform* counts were reduced from an average of approximately 3100cfu/100ml to a level of 500cfu/100ml, and the amount of *dissolved oxygen* increased steadily from 0.1 to 3.9 ppm. (The dissolved oxygen (DO) concentration for 100% air saturated water at sea level is 8.6 mg O_2/L (ppm) at 25°C and increases to 14.6 mg O_2/L (ppm) at 0°C.) These results demonstrate the capacity of the Flowform system to break down organic matter and reduce bacterial contamination (Spencer 1995).

In two sample tests conducted in New Zealand in the Fuglistaller farm by the Taranaki Regional Water Board (1989), over a 5 day period with the 50 litre p minute Flowform Järna series treating a 25 cubic metre dairy shed effluent pond at night time only the BOD levels dropped from 280 g/m3 to 88 g/m3. To be sprayed out onto paddocks as liquid fertiliser 30 g/m3 would be needed but as rain came along in day 6 we stopped the trial. It is likely that the BOD would have continued to drop. (Trousdell EDRI Report 1990)

In Solborg, Norway, a system of ponds for wastewater treatment using Flowform vessels improved oxygen enrichment from 30% to 90% was detected between the inlet and outlet within the Flowform cascade (Mæhlum 1991, Schönberger and Liess 1995). The continuous rhythmical movements induced by the cascade also prevented freezing of the pond in winter.

In the same installation, between the deposition pit and the 3rd pond, the content of chloride in the water was reduced by more than half (Mæhlum 1991, Schönberger and Liess 1995). Since chloride is hardly decomposed in nature, it was supposed that the chloride reduction was caused by intrusion of surrounding water and dilution. Measurements of the inflowing and out flowing water however showed that the reduction of chloride is stronger than would be possible through dilution (Mæhlum 1991).

In trials in Holland the transmission coefficients for oxygen in a Flowform cascade were very similar to a meandering step cascade (Flowform Järna 0,39 / Flowform Malmö 0,45 / Flowform Olympia 0,49 / step cascade 0,46) (De Jonge 1982, Schönberger and Liess 1995).

Flowform water had a pH-value that increased by 0.77 compared to untreated water, whereas the electrical conductivity decreased. (Brückmann et al. 1992).

In New Zealand, oxygenation research was conducted in 1987 and 1988 to how different Flowform design types affected water. The *Beehive, Järna* and *Taruna* models were compared.

The Hawkes Bay Regional Council water board scientist and Rob Dewdney carried out both field and laboratory tests using a dissolved oxygen meter and the Winkler test.

Bore water at 13C with high levels of calcium was run once only through a Flowform cascade with 12 *Beehive* models, which are 4 and 5 chambered 'lung' designs with extra vortical chambers. This method was repeated 20 times to gain average readings. The oxygen readings taken at the start averaging as 1.4 parts per million (ppm) and the end as 7.0 ppm, showing an increase of 5.6 ppm over a distance of 4.8 metres. Each unit increased dissolved oxygen by an average of 0.465 ppm.

Similar testing with the Flowform *Järna* model, which is a 'kidney' shape emphasising mixing and polishing, showed an average increase per unit of 0.2 ppm.

This was repeated six months later in 1988, but with a cascade of 23 of the same Flowform *Beehive* models with the same bore water, giving a start reading of 0.7 ppm, a middle reading of 6.4 ppm and the end reading of 8.95 ppm. The water was run through this cascade once only, but again repeatedly with new water to gain average readings. Increase in the last 12 vessels was 0.163 ppm per unit. Oxygenation in water above 9 ppm becomes saturated and is supersaturated above 11 ppm.

In order to find out more about Flowform capacity to oxygenate at the (super) saturated dissolved oxygen end range, we ran pre-oxygenated tap water and bore water through a 'heart-lung' *Taruna* cascade, at first just run through once to the 7th unit, and then reticulated repeatedly using a centrifugal pump.

The start reading was 8.1 ppm and run once through to the 7th unit, the readings then showed 10.8 ppm. Running a total volume of 800 litres of water for six minutes (at 100 litres per minute) through the cascade gave a reading of 12 ppm, which is super saturated. After three minutes readings were 11.4 ppm. We tested natural oxygenation in the local Tukituki River, reading 12 ppm after 40 metres of gentle rapids, and 7.6 ppm before it. (I. Trousdell 1989)

This indicates the need for more research into oxygenation, especially as there are some indications that oxygen which is introduced into water through Flowform activation may stay longer than through the method of spraying the water up into the air. (Chris Weeden, personal communication).

This might be a more efficient and durable way of oxygen enrichment possibly because water that is polished through flow movement enriches and elaborates its internal microstructure.

Density, Temperature, Viscosity and Flowrate

The influence of parameters of density, temperature, viscosity and flow rate effects on the water rhythms was studied in a Flowform cascade with four vessels at the University of Luleå in Sweden. The viscosity was altered with polyeteneoxide powder in the range of 10^{-6} to 10^{-2} m^2/s; water density was altered between 1000 and 1170 kg/m^3 by addition of salt, and temperature ranged from 5° to 48° C.

The frequency of the water pulse in a Flowform vessel did not depend on density, viscosity or temperature of the fluid, but was found to depend only on the quantity of water.

In one particular Flowform model, for example, the pulse started at a flow rate of 3.0 – 3.6 l/min with a frequency of 104.0 min^{-1} (1.73 Hz), whereas at 7 l/min the frequency increased to 107.6 min^{-1} (1.79 Hz). At different positions within the Flowform designs, electrodes were immersed in the flowing water in order to measure electromagnetic properties. It was detected that the voltage in the vessels pulsated with the same rhythm as the water (Strid 1984, Schönberger and Liess 1995). This enables rhythm frequencies to be measured accurately.

Rhythms and Sound Frequencies

Nick Thomas investigated rhythms in single and multiple Flowform cascades using Fourier analysis (Thomas 1983). He measured the depth of the water electrochemically, and recorded the measurements at regular intervals to obtain a frequency plot of the rhythm.

The results obtained showed a high diversity of frequencies in different designs, and some display very strong secondary frequencies.

Rhythms were often complex even in single vessels, showing both variation of the fundamental frequency (corresponding to the visible pulsing of the water in the form) and distinct frequency components (Thomas 1983). Fundamental frequencies were in the range of 0.68 – 0.36 Hz, corresponding to a period of 1.5 – 2.8s for the pulse in different Flowform types. Some Flowform models exhibited a high frequency component typically around 12 Hz, which might be attributed to surface waves.

Sound frequencies also were measured on a *Sevenfold* Flowform cascade. The sound in this cascade was found to have the character of a turbulent little stream. Frequency spectra in all individual Flowform designs have relatively broad peaks in the 1000 – 1600 Hz region. The results indicate that the major sound generating mechanism is the same for all designs (Kristiansen et al. 1993).

The sound in a Flowform cascade or a natural brook is thought to be caused by falling water catching and taking down little bubbles of air. Sound is generated when these bubbles burst, much the same as the sound heard when a drop of water impacts on a water surface.

The sound producing part of flowing water is therefore characterised by whitish turbulent water. The darker and less turbulent parts, where water gently slides to the pool below, do not produce any sound.

Flowform Effects on Plant Growth and Morphology

Lunar and Planetary Influences on Plant Growth

There is some evidence that the effects on plant growth created by rhythmical treatment depend on the time of day when it is applied to the water (Hagel 1983), as well as upon the lunar cycle (Schikorr 1990, Loyter 2005) (see part 4.1).

It has been established by a number of researchers that the different phases of the moon and planets have a considerable effect on the germination and growth of plants (Edwards 1993, Endres and Schad 2002, Fyfe 1967, Schwenk 1967, Thun 2003, Thun and Thun 2004).

Plants appear to respond to moon phases more sensitively after having been treated with Flowform water (Schikorr 1990, Loyter 2005, see part 4.1). The biggest enhancements of root length with Flowform water occur at the dates of new moon sowings, whereas full moon sowings result in minimal enhancements, and the moon in perigee results in a slight inhibition (Schikorr 1990, Schönberger and Liess 1995).

These experiments indicate that Flowform treatment might amplify the water's sensitivity with respect to growth promoting or growth inhibiting influences.

Generally, these results confirm the assumption that the Flowform water treatment technology is not only effective in isolation, but is acting as a kind of sense organ for cosmic influences.

Influence on Plant Germination, Weight and Length

The rate of germination of wheat was demonstrated to increase by 11% in Flowform treated water compared to untreated water (Hoesch et al. 1992).

When radish was exposed to Flowform water, the fresh weight of the bulb was higher compared to untreated water (Hagel 1983). Differences were most significant after treatment in the early morning, towards the afternoon the effect appeared to decrease.

Experiments with wheat (Schikorr 1990) and cress (Loyter 2005, see part 4.1) carried out at Emerson College, Sussex, indicate that plants treated with Flowform water usually had greater average root lengths compared to controls grown with water which was aerated with a pump instead.

Influences on Plant Phenotype

Research in connection with biological water purification was conducted at the Warmonderhof Agricultural College in Holland with water that passed through a Flowform cascade and a non-rhythmical step cascade (Fig. 25).

Over a period of four years, the flora growing in the ponds downstream from the two cascades developed in different ways. The Flowform treated water stimulated generative growth and phenotypes characteristic of plants grown in the light.

Flower development was pronounced, flowering occurred earlier, with stems more upright and smaller leaf production, and colouring was deeper in autumn. In contrast, the step cascade induced vegetative growth typical of plants grown in the shade. Here leaves were wider and flower development was less pronounced (Van Mansfeld 1986, Wagenaar 1984).

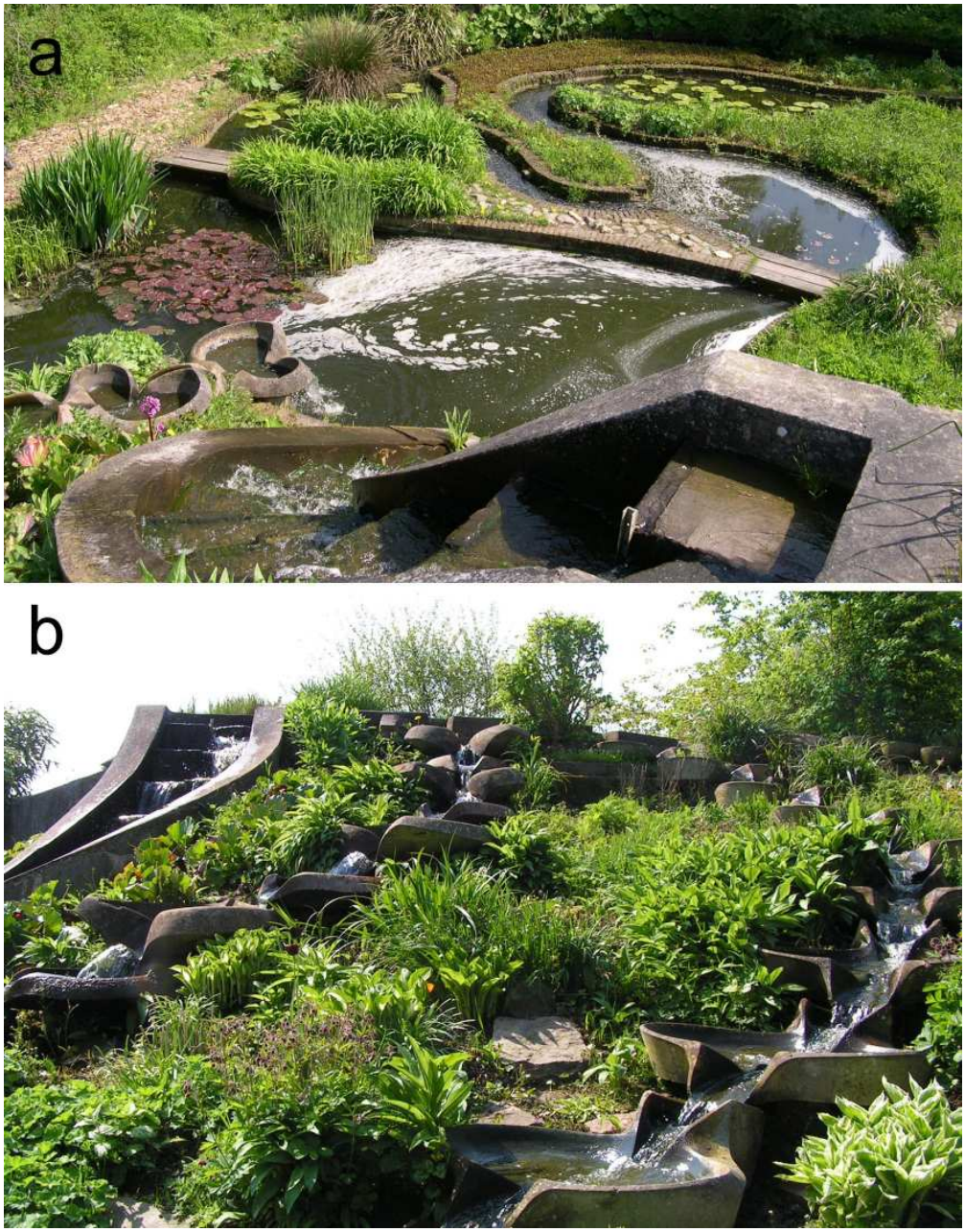
Macrofauna and Microbiological Effects

In the step cascade system in Warmonderhof mentioned above, there was a higher number of species of organisms which prefer darker habitats (deep water and bottom dwellers) and have softer and rounded shapes, move slower and often go through a life cycle with a flying stage, such as midge larvae.

In the Flowform system, more organisms were found that prefer regions of light (upper water layers and surface); those have more differentiated and indented forms, more nervous movements and go through a life cycle remaining in water, such as water mites and crustaceans.

The mobility of fish was higher in the Flowform system compared to the step cascade (Van Mansfeld 1986, Wagenaar 1984, Schönberger and Liess 1995).

Fig. 25: Biological water purification system at Warmonderhof Agricultural College in Holland, (**a)** step cascade and Flowform Olympia seen from above, (**b)** step cascade (left), Olympia (middle) and Flowform Malmö (right) cascades.



Observations showed that in the step cascade system the water appeared cloudier and had a musty smell of ammonia, whereas the Flowform system had clearer water and a humus and hay like smell (Van Mansfeld 1986).

In the Warmonderhof installation however it might be questioned whether the two flow systems were exposed to the same amount of sunlight. In photographs the step cascade appears darker than the Flowform cascade (Schönberger and Liess 1995). This was an early observation that led to the step cascade being amended so that light conditions were comparable to the Flowform cascades.

In a system for wastewater treatment in Järna containing seven Flowform cascades it was shown that pond water could be efficiently cleansed with respect to pathogen bacteria (Sernbo and Fredlund 1991, Schönberger and Liess 1995).

The outlet of the installation leads into the Järna fjord, where the treated wastewater has such a high quality that microorganisms and higher organisms prosper as well as they do in fjord water (Alleslev 1987).

Flowform Stirring of Biodynamic Preparations

Research conducted at Emerson College in Forest Row, England showed that Flowform stirring of biodynamic preparations (Fig. 26 right) has similar effects as hand stirring and resulted in an increase of the yield of wheat by 22-25%, whereas machine stirring improved the grain yield by only 11% compared to control plants (Schikorr 1994, Schönberger and Liess 1995).

Observations made over a 20 year period on numerous farms in New Zealand that only used Flowform stirring of their biodynamic preparations showed that the number of earthworms increased, animals were healthier, and the soil was darker and more loose and friable (Trousdell and Proctor 1991, Schönberger and Liess 1995).

The New Zealand and Australian national Biodynamic Associations accept Flowform stirred preparations in Demeter standards because of the extensive success using them.

Researcher Dr. Walter Goldstein reports from the Michael Fields Agricultural Institute at East Troy, Wisconsin, that the Flowform Vortex model (Fig. 26) using an Archimedean screw (Fig. 19 left) as a water recirculation device produced preparations equivalent in quality to good hand stirring.

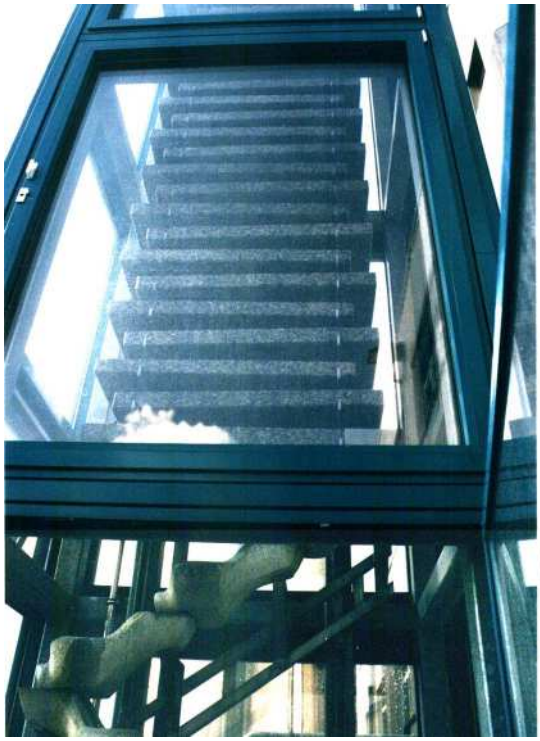
Using a conventional centrifugal pump with the same Vortex model resulted in somewhat lesser quality, whereas the use of a mechanical stirring machine achieved a lower quality result. (personal communication).

Fig. 26: **Biodynamic preparation stirring** using the Vortex model, which has two vortex holes developing deep left and right vortices that fall into repeating chaos chambers. Note the aerial application by aeroplane (left).


Biodynamic Food Production and Flowform Effects

At Herzberger bakery in Fulda, Germany, the effect of Flowform treated and untreated water used for baking bread was examined. The treatment consists of running the water over a number of granite steps followed by a Flowform cascade (Fig. 27).

Fig. 27: At Herzberger bakery in Fulda, Germany water flowing over granite steps (left) followed by a Flowform cascade (right)




It was found that the amount of water uptake in the bread is higher after treatment and therefore the bread remains fresh and free of mould for at least two more days compared to untreated water. Besides, the volume of dough is increased by 4%, while the consistency and taste is significantly improved (Strube and Stolz 1999, Brückmann 1992, Schönberger and Liess 1995).

Preliminary Indications of other Flowform Effects

Experiments with wheat seedlings gave also some indications of a longer lasting sensitising effect of the Flowform treatment (Wilkes, pers. communication). Further experiments over extended time periods are needed to confirm these results.

Research by Peter Alspach (MSc) within the New Zealand Ministry of Agriculture and Fisheries in the mid 1980s showed Flowform water tended to precipitate inorganic iron out of water, equivalent to the results of the influence of magnets.

Rhythmical Treatment and Electromagnetic Properties of Water

In conventional wastewater treatment, the water is chemically cleaned and freed from bacteria and from pollutants such as lead, cadmium and nitrate.

Research indicates however that after processing in a conventional sewage plant, the water still contains certain electromagnetic frequencies that can be harmful (Ludwig 1991). Certain electromagnetic frequencies of water polluted with heavy metals have been detected in cancerous tissue, such as the frequency 1,8 Hertz (Gross 2000b). This frequency was detected in drinking water of a German capital, even after having been distilled twice (Gross 2000b, Ludwig 1991).

Thus it can be concluded that after any cleansing -purification - chemical -treatment -filtration or even after distillation, the pollutants' harmful information - the electromagnetic frequencies/oscillations can be transferred to the human organism. They are there, measurably present in the water molecules both before and after any of the conventional treatments.

So even when our fresh water is chemically purified it is still physically pollutant-information-charged both before and after any conventional treatment. It is not the chemical substance that affects the human organism when we drink this water, it is the undesirable frequencies.

Ludwig reports that repeated vigorous vortical treatments are the best way to neutralize undesirable information remaining in water after removal of physical pollutants (Ludwig 1991).

This points towards the possibility of clearing the water of unwanted electromagnetic frequencies by treating it with Flowform eco-technology, which enables water to move vortically in repeating flow patterns.