TRANSFORMING •ART•

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CREATIVITY • THE ARTS

•WATER•

Cover: Detail of the Convention Centre Water Feature, designed by Robert Woodward.

TRANSFORMING ART

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•EDITORIAL•

My aim in this issue has been to explore the question of our estrangement from water as it was traditionally understood as an elemental power, as a 'divine' presence rather than simply a physical substance and resource. Some of the articles examine the traditional symbolisms of water, the 'traces' of our mythic past. This issue also reports on those who are playing a part in bringing awareness to an area of current concern — the unhealthiness of our waters. It explores ways of thinking about and relating to water which have arisen through an integration of scientific knowledge and artistic insight. All these elements have been brought together here to contribute to an understanding of the part water plays in contemporary culture.

Modern art is characterised as a search for *freedom*. Artists have endeavoured to break with every traditional form which was felt to limit individual expression and there has been an intense focus on the creative act for its own sake. However, new needs are making themselves felt as we approach the end of the century and millennium. There is now a growing awareness that nature as sacred presence and power has fallen into oblivion. The road towards freedom and individuality has taken us away from an instinctive belongingness with nature yet it is obvious that we can't simply turn back to the old mythic consciousness even if that holds a nostalgic appeal. We appear 'condemned' (to use Sartre's paradox) to our freedom. When the modern sense of freedom 'ripens' and becomes conscious of itself we can speak of a 'postmodernism'. Sometimes this is interpreted as a revival of past forms, but, I suggest, richer and more vital is the possibility of achieving consciously that which was once comprehended and enacted instinctively.

Water, in an unexpected way, may help us at this point, if it is allowed to 'speak' its essence. That can happen through art's agency. Water, as articles in this issue reveal, is the 'selfless' element, with no form of its own. It is the servant of growth, the element which mediates the creation of living form. But it also has a relationship to death through its power of dissolution. It can permeate what is rigid and sclerotic, loosen binding forces, draw into solution the most mineralised substance, or, psychologically speaking, release what is intractable, self-possessed. Water is the mediator between death and life. And so it is at the 'post-modern' threshold; for a culture which cannot, of itself, exit from the very condition it created for itself, there has to be a kind of death if there is to be new life.

Opening to water's essence is an act of individual creative freedom. It is a means by which individuals can come to serve the forces of growth and life in culture, through a gesture of 'allowing' or 'mediation'. Water, as Theodor Schwenk explains in books reviewed in this issue, can provide a vital schooling in our time. Water is the element in nature which may help us to understand the relationship between death and life in cultural evolution.

Nigel Hoffmann

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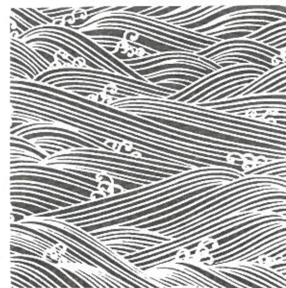

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•SCULPTING WITH WATER•

INTERVIEW

An interview with ROBERT WOODWARD

Robert Woodward was born in 1923, studied architecture in Sydney and worked for a period with architects Alvar Aalto and Viljo Rewell in Finland. He now has a private practice as a fountain design specialist. He has won numerous awards including N.S.W. Chapter RAIA Civic Design Award (1983), Appointed Member of the Order of Australia (1987), The Environmental Design Fellowship, Australia Council (1988), Walter Burley Griffin Award, National RAIA Civic Design Award (1991) and Institute of Landscape Architects National Civic Design Award (1992).

TA: You have become known as a 'water sculptor'. Is that an accurate description as far as you are concerned?

RW: That's what they've called me in America. I'm qualified as an architect and a landscape architect. Earlier I had trade training so I'm pretty familiar with materials. I'm an architect basically but in more recent years I am, what I've been labelled, a water sculptor. This is not a question of sculpting with bronze or stone and then adding water; water is the basis of it. But of course it's mixed media sculpture because water does require a supplementary material.

TA: Do you mean that you sculpt out of the nature of water itself? I'm thinking that water is inherently so flexible it can be made to assume any form. But what about creating from, in a sense, what the *water* wants?

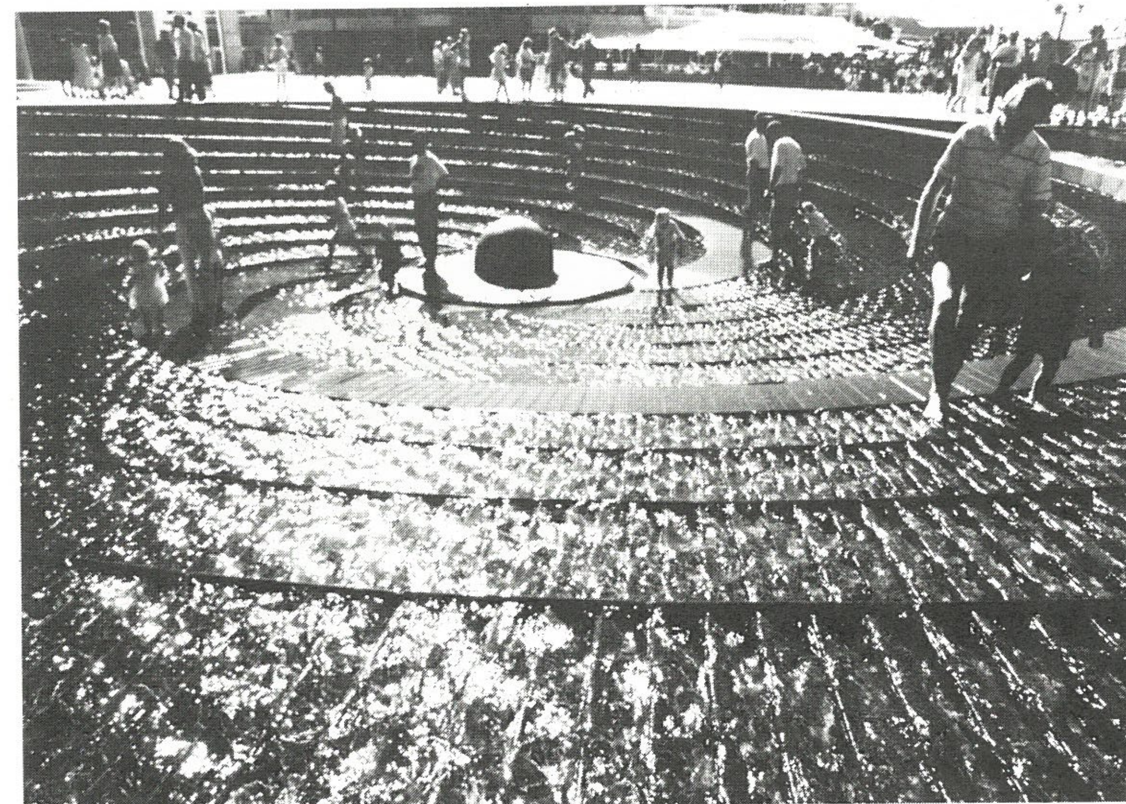
RW: I've worked with sculptors occasionally, joined them to contribute the water aspect of a project. Now, I don't work with anyone in a co-production situation — it's either their concept or mine. When I'm working with a sculptor it will generally be *their* concept. I have found that in most cases sculptors already have in mind the forms of their sculptural expression which will often be dictated by the material they are using — whether it be stone, glass or bronze. They then expect the water to come into that predetermined

form. So the character the work acquires is related more to the solid medium they're using than to the inherent nature of water. This means that there's a tendency to try to *make* water do things which it often doesn't want to. It is better to see what it already does — it does *so much*. It's rather like language, where if you want to write a book the words are all there to be used. If you're brilliant you might want to conceive new words to express something, but in most cases there's no need to because the vast range of words available to us covers all of our needs. Water's the same — it covers our needs, so it's best to stay within that range.

To name a few of its characteristics — it's a medium that's transparent (glass is too, of course, but it doesn't have movement); it has sound; it has qualities of reflection and refraction; it's extraordinarily flexible and its movement produces a whole variety of different feelings and qualities that other materials don't. And of course water is involved with pretty well *everything*, whether it's chemistry, physics, history or landscape. Whatever we look into, water's there. I start by thinking of my experiences with water, of what it does for me and for other people, and simply utilise those qualities. When I'm working with water I sculpt it, I *physically* work with it. Generally I need to make mock-ups and prototypes to develop some basic idea; some idea which is related to the site itself. Then the water by itself will tend to do both expected and unexpected things, and I try to understand *why* it's doing those things, and select from those activities whatever will suit my purpose.

TA: What were the experiences which led you to the cascading, rippling effect you have produced in a number of your recent works?

RW: Well, we all look at water. All of us have been to the beach and looked at the waves coming in, or



Robert Woodward, Convention Centre Water Feature, Darling Harbour, Sydney, 1988.

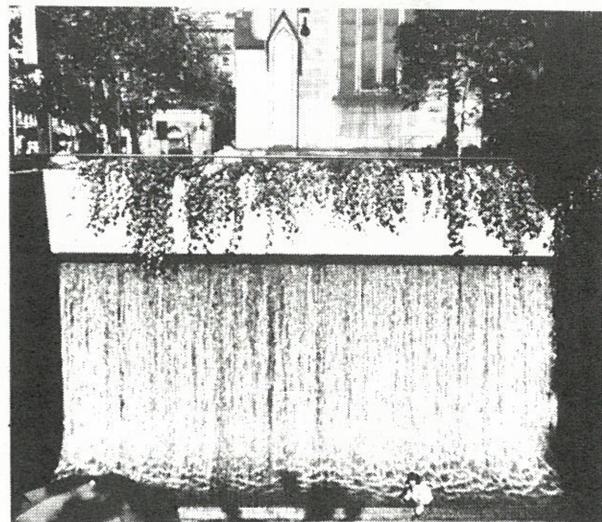
sat on the edge of an estuary somewhere and watched the waves gently lapping against the shore or flowing through reeds making them move back and forth. If you go to the mouth of one of our coastal rivers, sometimes you find places where water flows out of an estuary into rocky shallows or ripples over sand bars. If you stand in a mountain stream where it cascades you can feel the eddies.

TA: Do you mean that you try to emulate the effects of water as you have observed them in nature?

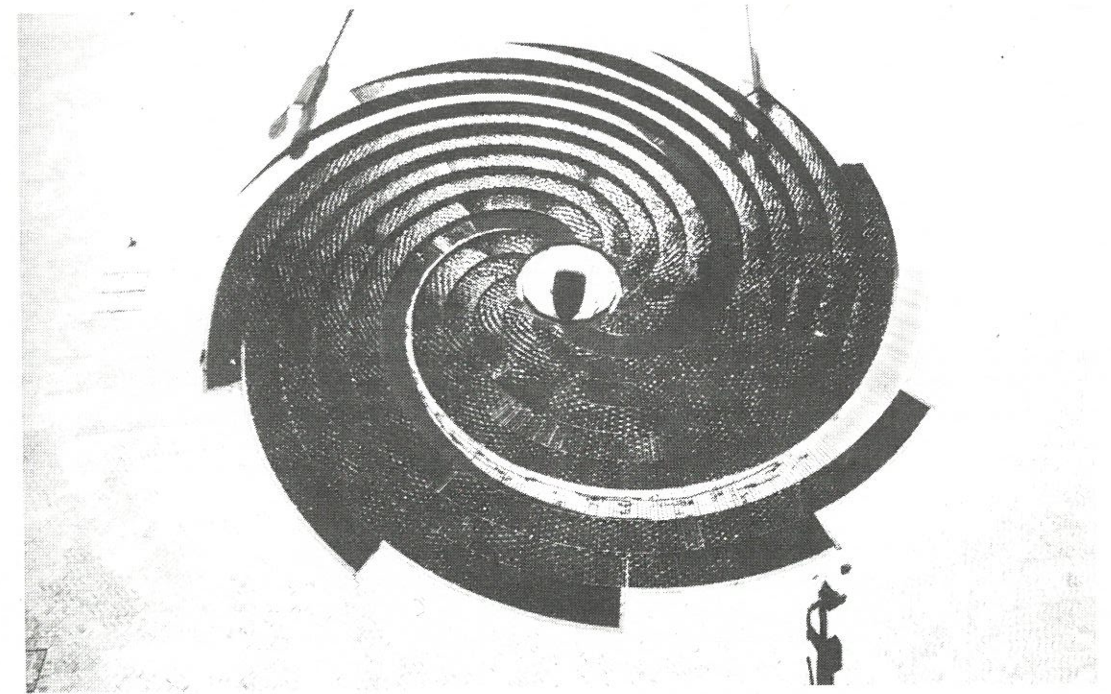
RW: No, I don't try to capture what I've seen in nature. Reproductions of nature in an urban setting are usually out of place. Nature tells me that water does all kinds of things, and if you watch what it's doing in nature you can begin to understand *why* it's doing those things. Such observation may need to be backed up with hydraulic studies, for it's very hard to understand a wave action, for instance, without studying the theory of it. My knowledge of wave theory comes mainly from American navy publications. Then there's the normal theory which engineering students learn, which has to do with channel, cascade and pipe flow. This theory explains the physics of what you see happening in nature. But I don't approach what I am doing from the engineer's point of view — the engineer looks at water performance in terms of the formulae which will tell him what it will do. I approach from the opposite direction — I see what water is doing, I make it do things, and then go back and find out *why* it's doing them. It's essential to find out why because if I don't I might lose control of it in the final job. For instance, the flow rate in a fountain could increase or decrease due to bad maintenance, and I need to know ahead what effect this will have.

TA: Looking at your work at Darling Harbour and some of the fountains in Canberra, they appear composed of similar elements — little walls over which water is flowing. Obviously that has in some way been inspired by falling water as you have observed it in nature. But in what ways have you taken and developed those experiences?

RW: There are 3,000 closely spaced weirs at Darling Harbour and I was already employing the same detail at Parliament House in Canberra. I had to experiment for some time before I got a certain controlled performance with the water flowing over weirs — it had to do with the size and shape of the weirs and their spacing. I made up little boxes, two metres by one metre, and put weirs across them with the intention of studying water flowing slowly downhill. A channel of water flowing downhill with a grade of 1 in 17 picks up a hell of a lot of speed — it will roar straight through. You can make it shallower and shallower if you like, and that will slow it up to a certain extent but it doesn't necessarily make it very exciting. I tried all different ways of making water flow slowly downhill. In Darling Harbour the water flows down ten narrow channels, leaving two for people



Wall of Water Fountain, Sydney Square, Sydney, (1976).
Photo: John Wong.



Robert Woodward, Convention Centre Water Feature, Darling Harbour, Sydney, 1988.

to walk down. The water flow is disciplined, waves reflect off the walls of the channels and develop completely different action and a completely different effect from the one in Canberra which is a loose, open area of waves going in all directions. In Canberra I was following Aldo Giurgola's overall concept for the building — it was *his* forecourt, the character was established, unlike the formlessness at Darling Harbour. His idea was for an island in the middle representing the island continent with the aboriginal meeting place mosaic, and the fountain was the surrounding oceans. I was depicting the freedom of the open sea.

If you look at gravitational flow in a stream you can see the variety of water in nature. That made me realise that I could make the effect more interesting and rich by changing the shape or cross-section of the weir. The fascination is that you don't *have* to create curves in the solid material for interest, because water does that for you. If you have water flow over a square brick (all the stonework in the Darling Harbour fountain is straight diamond saw cuts in granite) it won't be a square lump of water; it will be curved water. It is common practice to round weir edges when a curved overflow is wanted or to cut a spiralling channel when a designer wants to make water twist into a whirlpool vortex. These elaborations are unnecessary and often futile. Water curves naturally over any shape. Water flowing out of the end of a square-cut pipe has a beautiful curved surface; and a vortex will form above the plug hole in a flat-bottomed bathtub.

Of course it's okay to have water together with carved shapes which have a beauty of their own. A good example of this is in Mughal palaces in India where clear, still water fills the intricate florid depressions cut into the marble floors. The water enriches the decorations, not with movement, but with perceived depth variations.

TA: Could you say something more about how you actually go about sculpting with water? How do you go about bringing out particular qualities of water for a particular context?

RW: All my work is really just solving design problems. That's taking the architectural approach. The problem depends upon the site character; the amount of money available; the time scale, whether it should last forever or just a couple of weeks (for example, my fountain for the New Zealand

pavilion for EXPO '70 in Osaka was designed to last for only six months — the duration of the exhibition); and who will be seeing it (because it relates to people very, very much). So it begins from the site itself; that dictates what sort of solution is needed. And obviously, if it's going to be a project advertising a company that's selling cars, it will require a different character or feeling from, say, a small trickle of water alongside a sidewalk café. In some cases it needs to be vibrant and dynamic, in others quite gentle and soft, and water has all these qualities. It's a question of understanding how water can achieve those qualities — and of harnessing them.

For example, the basic problem at Darling Harbour was that it was a rather sterile site, set amongst various unsympathetic buildings. There is also a spaghetti-like contrast of overhead freeways which is divorced from the ground. That disparity between all those elements meant there was no pre-existing character to expand on or to enhance. So I started from scratch and dropped a dish in the concourse, carving it out, as if an auger had carved it out of the pavement. This means that people are not aware of it from a distance but come upon it and discover it close up. They are tempted to pause, walk down into it, paddle in it, or just stand around the edges. Actually I'd originally had a much grander scheme involving cascades working from the tides of the harbour. So in one sense I suppose my mind was already tuned in to water running down cascades of some form, rather than a fountain like a lolly on a stick stuck up into the air. That kind of thing was much better suited to the El Alamein fountain where it had to be seen from a distance, above the height of cars, by a mass of people.

TA: Do you draw inspiration from any particular tradition or philosophy which is connected with the use water in landscapes? For example, in Japan, the use of water in gardens had a spiritual significance and is much more than just decorative.

RW: Well, the answer to that is that I don't have a philosophy, or I don't *think* of it as a philosophy. I think of my work as something quite practical. I don't read all that many books and simply enjoy making things with my hands and solving particular design problems. But we're all influenced by what we've seen or read. When you look at the use of water in China, in the paradise Gardens and the Moorish work, and through into Europe, into France and England, there are philosophies through all that. In each case there are certain purposes for making fountains and pools. What was done in China was to a large extent determined by what *existed* in China. There's a very high water table in that country — if you dig a hole in the ground you get a pool of water — it's as simple as that. So the Chinese developed *that* into something. In Japan it's a little different because most of the palaces and gardens there weren't built on flat land as in China. They're on sloping ground, so you had water flowing down in a stream with a pressure head which enabled them to do things with the water that were not possible in China. In China you don't get jets; you get still pools of water, sometimes flowing slowly. Certainly religious and philosophic beliefs come into how water was handled, but in many ways what was done is related to the natural things which were happening.

In Europe there's a strong decorative aspect to fountains, particularly in France. In Italy you find palaces being built on sloping ground so that they could use the pressure produced by the head of the water to create jets for special effects. In England they came back to a natural approach, particularly with Capability Brown. Here you just have lakes and hills being created to gave a natural expression, as a reaction to what the French had been doing. With the French it was a question of each person trying to outdo his predecessor in startling effects. Going back to the ancient fountains in Italy, these were originally built to celebrate the completion of the building of an aqueduct and they then became the watering point for a town. In Switzerland the village fountain was also originally the water supply for the townspeople; they brought their jugs and carried the water home. Later the fountain itself came to be seen as something interesting and decorative in itself.

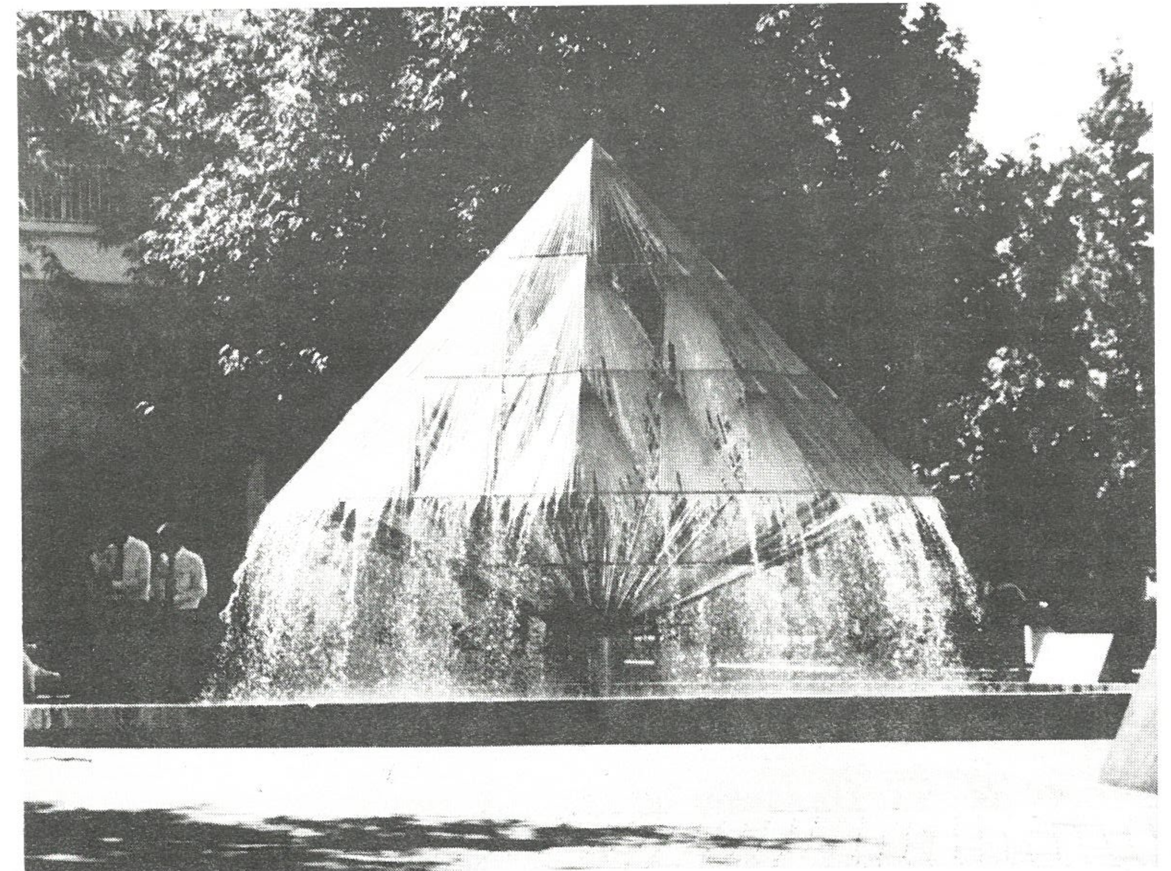
TA: You obviously don't like creating a fountain merely as a decorative thing, but as an artistic work, an expression of the place in which it takes form.

RW: I don't so much see it as an artistic work, although I suppose it gets seen that way in the end. I just see it as a design problem just as a painter who is doing a painting has a design problem.

TA: Is there any one determining factor that stands out as being of most significance when it comes to fountain design?

RW: That of course varies but strange to say it is the possibility of vandalism which has one of the greatest determining influences on what can be achieved in a fountain. Most of my works are for public authorities and are in public sites which means the fountain has to be made to withstand vandalism. The one shining example of a commission which was different from all the rest is the N.S.W Parliament House project. It's a very protected location; what I did there I couldn't do out in a public park. It's a public site really but it is very secure. Security guards are there all the time and it is closed in by glass so that the public don't get access to it at all. I thought: well, I probably won't get this chance again, so I will do something very delicate (although in one sense it is very tough — it is made of stainless steel and could last forever). It is formed from two and a half thousand rods just three millimetres in diameter, screwed in at one end. The whole structure is very delicate and in constant movement caused by drops of water falling off the end of the rods.

Water comes up through the centre of the fountain and emanates from a central conical space. I shaped this so that the water comes out in the same curve as the stainless steel and so you don't see a flat top on it, or a gushing top; the water and the stainless steel make one form. And that took a lot of work to achieve. When modelling the mock-up I would take a shaving off it on the lathe, lacquer it and do a flow test, and have a look to see if the water humped in the middle, or dipped in the middle. Then I'd take it out to the lathe again, shave another bit off, lacquer it and test it. I did that time and time again until I finally got it so that the water would just come up and take the shape



Robert Woodward, Canberra Times Fountain, stainless steel, 1979.

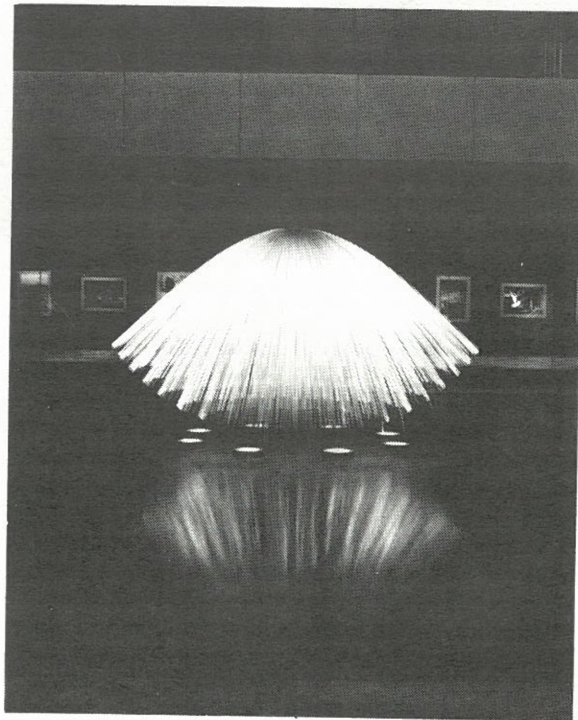
of the deflection curve of the stainless steel.

The top surface has twice the number of rods as the rest because the bottom members tend to hold more water. The water runs down each rod and forms a bead at the end. Those beads are very important because a spherical bead of water reflects light like a jewel. Hence the placing of the lighting underneath. Actually even daylight reflects in them, but more so at night time when the beads really light up. However, the bead is spherical for only a very short time because when it builds up enough it drops off the end of the rod. The load is then relieved from the end of the rod and it lifts and then has a pendulum action. The timing of a pendulum is dependent upon its length; the longer it is, the slower the oscillation and vice versa. You adjust a clock by moving the weight up and down so that you get just the right length of pendulum. These rods, which are nearly two metres long, are designed so that with the release of just a small load of water at the end they will deflect. They oscillate at thirty eight beats to the minute, which, as a musician would know, is a restful rhythm. That restfulness is intended to be sympathetic with the whole concept. It's not meant to be an exciting, vibrant thing. It's meant to be a quiet, gentle, restful.

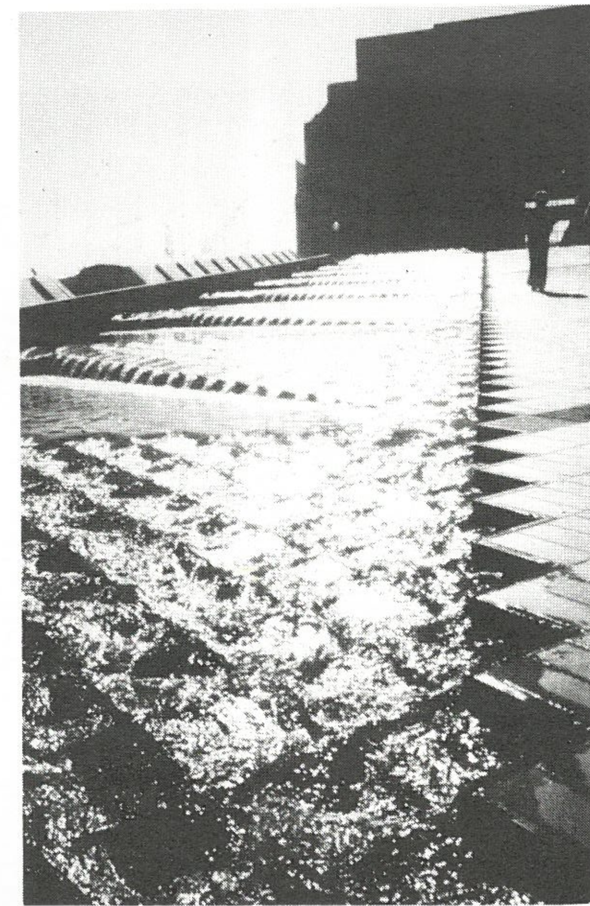
The sculpture appears to float on a simple tranquil pool. In the architect's design of the setting there was to be a step down to the water but I raised the level so the polished marble floor and the water surface would be continuous and smooth and reflective. Where the beads drop off the rods there is a ring of disturbed surface. The disturbance is confined under the sculpture like a ring of silver contrasting to the expanse of the mirror surface. Surface tension causes the small ripples to dissipate quickly — larger waves from heavier splashing would have spread unrestrained.

TA: What were the other design factors which influenced you here?

RW: The N.S.W. Parliament House project was one of my commissions where the pool was already there before I started. It's a square pool, about twelve metres square, within a circular glass wall. There are two storeys of building all around, sheltered from the wind. The sunlight penetrates occasionally, mainly in the middle part of the day,



Robert Woodward, New South Wales Parliament House Fountain (1984), Photo: Max Dupain



Robert Woodward, Forecourt Cascades, High Court of Australia, Canberra, 1980.

which is the time when a lot of people walk past, when parliamentarians go to lunch and visitors come in. The area is also used a lot at night. So it has a variety of lighting conditions — from bright sunlight, to shade, to night light. The space around has high quality finishes, with polished marble, brass and glass, so there is a certain standard set there in material use. The fountain needed to be sophisticated to fit into that. I reckoned that a lump of rough cast concrete in there wouldn't have been quite the right thing, unless one wanted a violent contrast with everything else. I wanted something people could walk past and ignore if they liked, which wouldn't disturb them. However, if they cared to look at it, it would hold their interest. It can be viewed from all directions and is seen mostly by walkers, although sometimes by people sitting. Hence the height of it; it sits comfortably at eye height. The first thing was to raise the pool to floor level so as to eliminate the distraction of the pool — I didn't want a pool edge, just a jewel sitting on the floor.

TA: Why a jewel? What was it which led you to think of a fountain in a parliament building as being a jewel?

RW: It's the Houses of Parliament so it needs to have a sense of quality about it. This context seemed to me to call for something of the nature of a jewel. Not too obtrusive a jewel, however; I couldn't see that space containing a violent or dominating form. I felt it had to be something which would sit in the centre of that pool and create a restful atmosphere. But it had to be precious; a shining, radiating jewel. ≈

•BACHELARD'S ALCHEMICAL IMAGINATION•

THE MATERIAL IMAGINATION

by JOANNE STROUD

Dr. Joanne Stroud is director of publications for the Dallas Institute of Culture and Humanities and is the editor of the Institute's Bachelard Translation Series of unpublished works by Gaston Bachelard. Her recent book, *The Bonding of Will and Desire*, draws on the archetypal psychology of C.G. Jung and James Hillman, and the ideas of Gaston Bachelard.

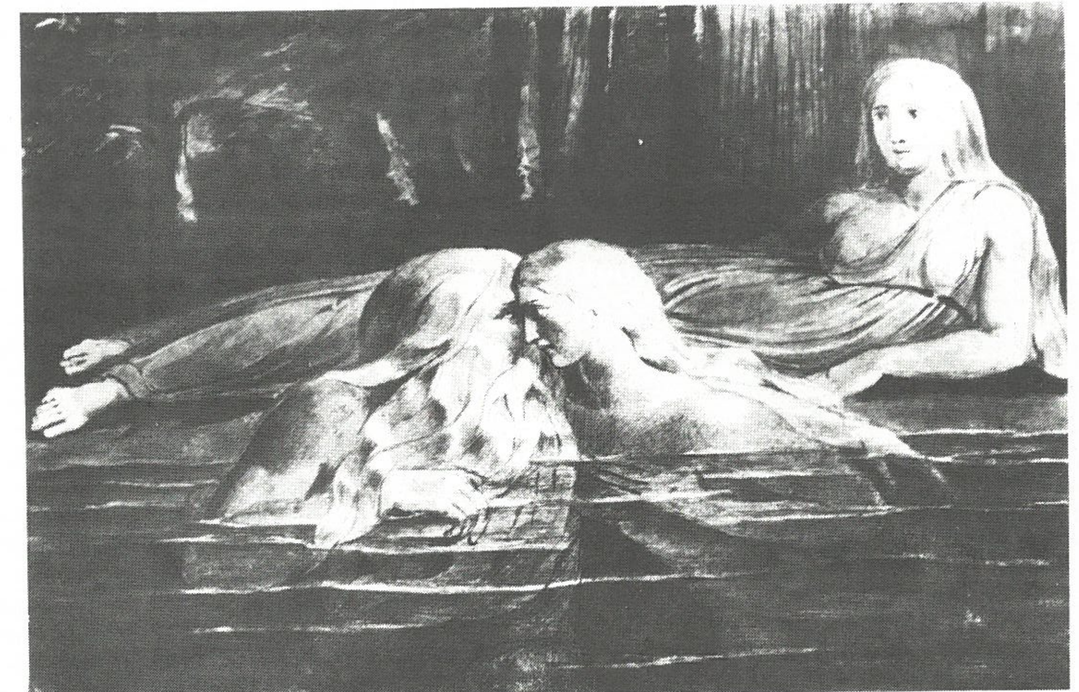
"Everything the heart desires can always be reduced to a water figure."

Paul Claudel *Positions et Propositions*

Gaston Bachelard, officially holding the chair of Philosophy of Science at the Sorbonne and by inclination a phenomenologist, became the twentieth century's master-builder of images. From 1938, the year he published *The Psychoanalysis of Fire*, startling the French intellectual world by subjecting a material substance to Freudian analysis, until he died in 1962, Bachelard refocused his attention on areas of the imagination. In a century that is ending with a prevailing view of image as something to be manipulated in order to achieve a special identity, Bachelard shows how a vivid image can be intensely compelling, especially the written or poetic one, stirring and stimulating creative imagination. Such craftsmanship, in his view, is not confined to the artist but is equally available to anyone who would observe the world anew, with the wondrous eye for detail of the child or the painter.

Bachelard evolves from this first singular study of material fire into a non-Freudian, more phenomenological concentration on the other three primal elements — water, air, and earth. Water and air — both of which he links to active day-dreaming, calling the first in 1942, *Water and Dreams —An Essay on the Imagination of Matter,* and the second in 1943, *Air and Dreams — An Essay on the Imagination of Movement* — each required a single book. Studies of the images of earth required two separate titles, *Earth and Reveries of Will* and *Earth and Reveries of Repose*. He returned twice more to the exploration of fire in *The Flame of the Candle* (1961) and in the study that he was working on when he died (published posthumously in France in 1988 and translated into English in 1990 as *The Fragment of a Poetics of Fire*). He also subjected other commonplace phenomena such as nests, houses, cellars, shells (*The Poetics of Space*, 1958) and daydreams (*The Poetic of Reverie*, 1960) to his imaginative scrutiny. But it was to the four classical elements that he devoted most attention.

Through his innovative prism humankind is seen as a cultured being. Using an image from botany, Bachelard insists his only concern is in the plant above the cut where the graft has taken hold, not in the fertiliser or the underground muck of psychological inquiry. He contends that each of the four seminal elements — earth, air, fire, and water — evoke associations of imagery that are helpful in understanding our responses to an animate world. Poets, philosophers, and medieval



William Blake *Har and Heva Bathing*, wash drawing, 1789.

alchemists have long held that we sustain a fundamental relationship to the elements. Bachelard demonstrates how these links are manifested in individual personalities. He receives credit from Edward Casey for probing the fourfold nature of experience that C. G. Jung began but didn't complete:

> "It took the genius of Gaston Bachelard to suggest how this gap in Jung's theorising [explicit analysis of active imagination in terms of fourfoldness] might be filled. Bachelard, who was also a student of alchemy, noticed the striking analogy between the four ancient elements and the four medieval humours."[1]

In his psychological and poetic studies of the elements Bachelard probes the multiple manifestations, magnificent or frightening, of commonplace matter. To him the objective world is more than an inert scientific sphere. It is alive and responsive. It challenges the human being to participate. Like a verbal alchemist unveiling the nature of the material world, he teaches that spirit is the heart of matter, that matter is the ensoulment of spirit. Through interaction with the world we not only learn about our soul's desires, but also that nature mirrors our spiritual aspiration by engaging our imagination. Images of matter are seized and exploited by imagination to express innermost being. Not simply representations or reproductions of nature, these images are the reality we single out from all the multiple possibilities of animation surrounding us.

Bachelard admires images and words that "sing reality", not merely describe it. In order to penetrate the complex of creativity in the work of poets, Bachelard advises us to take soundings like sonar, sounds of the depths. By immersing ourselves in these resonances, we hear the poem: its repercussions invite us to give greater depth to our experience. Once gathered into its reverberations, the poem possesses us entirely in "a veritable awakening of poetic creation." By following this methodology, Bachelard draws us into the central vortex of creativity.

To assume a Bachelardian stance is to adopt an imaginative openness to the tangibles of the world. Each encounter with matter, each material alliance rouses the desire to touch, or to conquer the element, and therefore evokes responsive imaging. Distinctive complexes develop in association with the imagination of matter in each traditional group; Bachelard calls them "the hormones of the

> "In a pre-Socratic sense water, fire, earth, and air are classical elements and have both inner and outer correspondences. By water, Bachelard means actual ponds and streams, but he also means bodies of water that populate our dreams and reveries."

imagination." By matching these qualities with individual personality traits, we obtain an amplified portrait of elemental proclivities, a mirror in which to view our reactions. Oversimplifying a bit, we can say that those who are drawn to water respond to the always changeable, always profound depths of experience. They are reflective. Those drawn to air value a sense of freedom and lightness, leading to upward, aspiring thinking. Those who associate with the earth veer toward stability, endurance, practicality, and determination. Those who respond to fire embody liveliness, emotional intensity, and the heroic. All of us have moments of strong affiliation with each element, but we have a dominant inclination that remains constant in our interaction with matter.

Bachelard focuses on validating images as predictable patterns, provided one follows the logic of images rather than sequential, linear logic: "imaginary elements...have idealistic laws that are just as certain as experimental laws."[2] Images are never so opaque that they don't unfold themselves at least partially to loving, careful exploration. He applauds the aim of recovering the numinous quality of an image, the imaginative input of the creative artist, because "the value of an image is measured by the extent of its imaginary aura."[3]

The world of painting helps us understand the link between the visible and invisible, the real and what Bachelard calls the "irreal," between what is expressed palpably and what is known only because it is left out intentionally in a work of imagination. Art critic John Russell explains the methodology of the Surrealist Odilon Redon: "Redon means us to watch until the image reveals itself, and he's not going to be hurried."[4] A like observation could be made of Bachelard, proceeding in his penetration of amplification of images at a pace that often seems maddeningly slow. As near contemporaries of T.S. Eliot, we have become accustomed to swift shifts and sharp transitions in syntax, but contrarian Bachelard insists that one of his aims is "to school us in slowness." [5]

What is an "element" to him? In a pre-Socratic sense water, fire, earth, and air are classical elements and have both inner and outer correspondences. By water, he means actual ponds and streams, but he also means bodies of water that populate our dreams and reveries. His philosophical and phenomenological interests are always connected to matter, the rapprochement with real objects, the *friendship for things.* Matter sparks inner images which in turn imbue matter with memory and values. This ever-renewing reciprocity of reverberations between inner and outer qualities obliterates any absolute separation between objective world and subjective experience.

Bachelard explores the potential imprisoned in every image. Of the four traditional areas of poetic inspiration, he finds water most compatible with his psyche, more personally alluring than earth, air, or fire. He claims it as his oneiric element. Nevertheless, in his probe of imagination and poetics, what initially drew his interest away from scientific inquiry was fire imagery. In *The Psychoanalysis of Fire* he began the studies that would fascinate him for the next twenty-four years.

In 1961 when he once more returns to explore fire imagery in *The Flame of a Candle*, he emphasises the more gentle, more radiant aspects of fire: the flame as light and soothing warmth, in contrast to the flame of lust and apocalypse positioned at the opposite end of this element's spectrum. Yet, even this selected limitation provides evidence of the range of his imagination. He demonstrates imagistically how our reaction to the world manifests hidden desires and reveals new aspects of our identity if we pay heed to them.

The life force and the image of the flame are linked in the imagination: "What is called Life in creation is, in all forms and in all beings, one and the

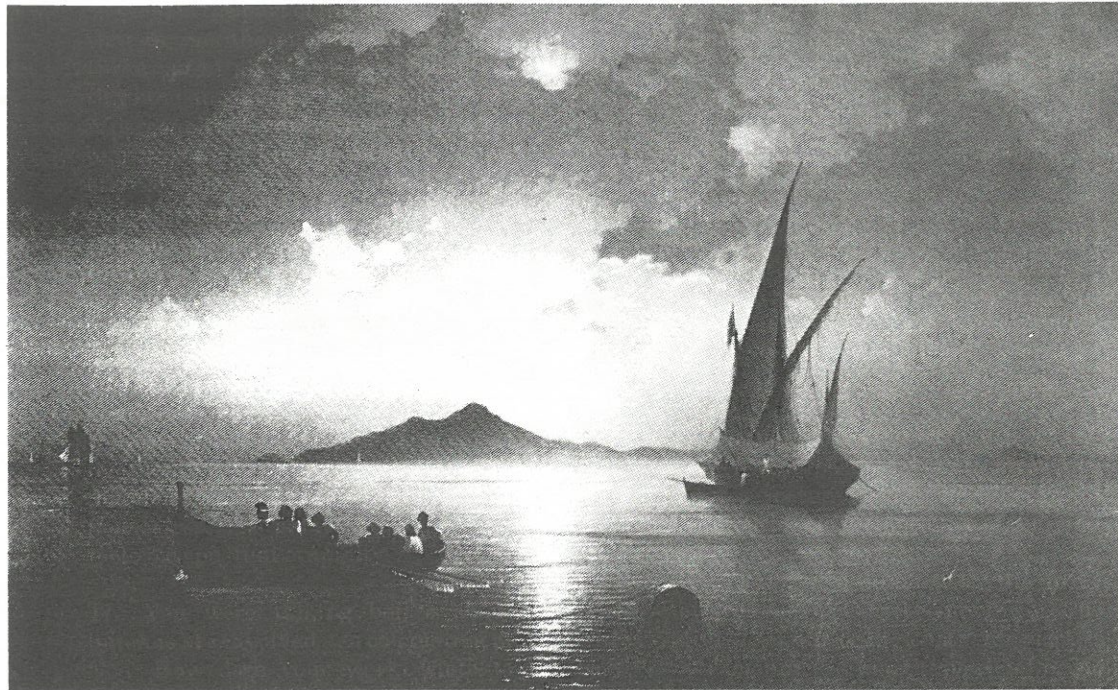
same spirit, a single flame."[6] For Bachelard, "the flame is...a living substance, a poeticising substance."[7] It is this quality of the "livingness" of the flame that triggers his musings of correspondences. The flame consumes and renews itself in a mysterious transformation and reformation of energies in much the way body cells do. It is the being-becoming and living-dying transposition of the flame's energy that generates clusters of images and poetic symbols. William Shakespeare's "Sonnet 73," with its life-cum-fire imagery, bears witness to the flame's quintessential role as nourisher and destroyer, as summarised in its final quatrain:

Berta Lum *Bridge with ducks landing*, colour woodcut, 1908.

> In me thou see'st the glowing of such fire,
> That on the ashes of his youth doth lie,
> As the deathbed whereon it must expire,
> Consumed with that which it was nourished by.

Flame as a life force projects beyond the human into the animal and plant worlds. Bachelard demonstrates how poets make the connection knowingly or intuitively. To the poet Novalis, "Flames constitute the very being of animal life...the flame is in some way a naked animality, a kind of excessive animal."[8] Bachelard employs the vehicle of Lautréamont's (Isidore Ducasse) poetic imagination to expose the stark savagery of fire imagery. He also connects slowly simmering fire to plant life and forges a link to a vast body of poetry in which fire and arboreal nature are coupled.

Most specifically, we experience the special quality of verticality by reflecting on the phenomena of fire. As Bachelard observes: "Everything upright, everything vertical in the cosmos, is a flame."[9] Sitting in front of a fireplace invites reflection on our aspirations to reach the ultimate. Observing a candle's upward thrust invokes yearning to ascend the heights. The human will in its extension emulates the verticalising will of the fire. Bachelard's primary focus is the exploration of the connection between spirit and flame, for "consciousness and the flame have the same destiny in verticality."[10] In a similar analogy, a spark, ignited by the energy of inspiration, participates in the whole continuum of human experience, because fire is characteristic of soaring



I.K. Aivazovsky *The Bay of Naples.* oil on canvas, 1841.

spirit, even when it sears the flesh.

Dante employs fire imagery as corollary to the ascending state of the individual soul in purifying itself and in aspiring towards union with God, whose ultimate nature is likened to a radiant flame. In the *Purgatorio* and the *Paradiso* Dante's poetic vision makes use of fire, in contrast to the *Inferno* where ice traps the most heinous sinners. In the former, those purged of sin must pass finally through a wall of fire at the top of Mount Purgatory. In the circling spheres of the heavenly worlds, souls become ever lighter as they ascend to the empyrean of pure light. Like a flame which can be blue, red, yellow, or white, depending upon its impurities, unadulterated light emerges only when a flame burns away all dross. In this connection, Bachelard touches on to an aspect of flame that we have often observed but have perhaps never really seen:

> "Fire receives its real existence only at the conclusion of the process of becoming light, when, through the agonies of the flame, it has been freed of all its materiality . . . The light, then, is the true driving force determining the ascensional being of the flame." [11]

Thus Dante's fourteenth century choice of the flame as a supreme image is reinforced in the twentieth century by Bachelard's phenomenologically sensitive observations.

Air, too, has an ascensional character. "Fire, air, light, everything that rises also partakes of the divine".[12] Air, for Bachelard, is "very thin matter." He thus devotes more attention to its movement and dynamics than to an analysis of its material nature. Robert Chapigny suggests that Bachelard's studies of material imagination demonstrate "a conversion to quality....Air is breathing rather than what a body breathes."[13] Mobility is the liberating force, both the effect and cause of the exaltation of imagination which, by definition, is always active and dynamic. Because air has neither inside nor outside, aerial action takes place along the vertical axis, up and down. Bachelard's evocations of the joys of ascending are reminiscent of Matthew Arnold's depiction of cerebral life under the influence of Hellenism. This ideal is one of beauty and simplicity: "aerial ease, clearness, and radiancy."[14]

It is easy, Bachelard suggests, to be carried away by aerial ecstasies, to follow an Apollonian trajectory to the windswept peaks of emotional experience. There is also the dark aspect of this element, the downward movement, the nightmare of falling. Through Edgar Allan Poe's moody incantations he illustrates the horrors of the unsupported fall. Nevertheless Bachelard believes that the falling dream is an outgrowth of melancholy and that imagination by its very nature would always prefer to rise.

The French philosopher believes all lessons in life are learned through the challenge of matter. Will is provoked by an engagement with the material world which is forever enticing human beings into an active relationship, into contract or contest. In this he differs from those philosophers who give will a moral definition. Imagination is attracted to the primary elements according to our natural disposition, and human will responds by seeking engagement with objects that we desire. In his study of the earth element Bachelard brings forth the most evocative images of will in action. Horizontal and downward gravitational movements are characteristic of this element. Will manifests through the imagination's engagement with matter which Bachelard demonstrates in images associated with the blacksmith, with minerals, and with crystals. Concluding his *Earth and Reveries of Will*, he casts man as "the indefatigable force standing against the universe, opposing the substance of things."[15]

Yet the pure will of an earth imagination may be combined with and modified by the qualities of other elements. Such is Bachelard's view of the moulder's reverie, of the sculptor creating, or of the child playing with dough or clay:

> "This reverie, which is born out of a working with soft substances (*pâtes*), is also necessarily correlated with a special will for power, with the masculine joy of *penetrating* a substance, *feeling the inside* of substances, knowing the inside of seeds, conquering the earth intimately, as water conquers the earth, rediscovering an elemental force, taking part in the struggle of the elements, participating in a force that dissolves without recourse. Then begins the binding action and the moulding, whose slow but regular progress brings a special joy that is less satanic than the joy of dissolving; the hand becomes directly conscious of the growing success of the union of earth and water." [16]

Bachelard characterises water as the most receptive of the four elements, the most strongly feminine. Water is the spring of being, of motherhood. Water flows, its constant movement responding to the environment and to possibility. Clear water, springtime water, and fresh water all have different imaginative contents. While the sea calls for tales of adventure, the river, lake, or stream evokes reverie. Water imagery impels us to seek the profound level of any experience; depth always feels like watery depth. We are refreshed by what Gerard Manley Hopkins, in his poem God's Grandeur, calls "deep down things."

Reflection, the type of thinking that we are urged to do in psychology, is a water term, and psychological echoes appeal to Bachelard. He teaches us to read images centrifugally, pressing our interior space outward, as if moving imaginatively from the centre of a flower, or in water terms, as ripples from a centre point, constantly expanding our way of seeing. It is the liquidity in our eyes that causes us to dream. He gently urges us to take the lessons of water to heart, to see by means of water. Water calls for a seeing in depth and also a seeing beyond: "the lake or pool or stagnant water stops us near its bank. It says to our will: you shall go no further; you should go back to looking at distant things, at the beyond."[17]

As with the other elements, water has a darker side which Bachelard exposes. Though some duality must exist for the imagination to be engaged, for the material element to involve the entire soul, black and white do not remain, in his thinking, a lonely dichotomy. Opposites involve each other, need the other, just as the subjective and objective world implicate each other. We need to see and the world needs to be seen. Thus water may hold for us reveries of fateful destiny, death, and suicide. To him, water is melancholy element *par excellence*. Mythically, the rivers and the sea bear away the dead; for example, the barks of Charon making the crossing to Hades. Unlike the dead buried in the ground, water seems to contain the dream of the victim. In *The Drunken Boat*, Arthur Rimbaud writes: "pale flotsam/And, ravished, a pensive drowned man, sometimes/ descends..." For Bachelard, the work of Edgar Allen Poe is so imbued with water's morbid, fatalistic quality that he sees fit to speak of "dead water" in this context. Here he makes an invers-

> "Imagination is attracted to the primary elements according to our natural disposition, and human will responds by seeking engagement with objects that we desire."

ion: "Water is no longer a substance that is drunk; it is a substance which drinks. It swallows the shadow like a black syrup."[18]

Bachelard often links what he calls "cultural complexes" with either historical or literary characters. In *Water and Dreams* he names a complex after Ophelia. The image of water provides an easily accessible connection between watery death and disaster: "Her name is the symbol for a great law of the imagination. The imagination of misfortune and death finds in the element of water a particularly powerful and natural material image."[19] For dreamers and poets, water will always be associated with Ophelia, whose suicide was provoked by neither pride nor vengeance, but by the downward pull of life grown too heavy. This complex embodies a circular, sucking descent in which we feel we are drowning in our woes, like Shakespeare's tragic heroine. The Swinburne Complex, on the other hand, involves the conquest of water, rather than being seduced by it. In swimming, for instance, water is subdued, a feat that reinforces the will: "More than anyone else, the swimmer can say: the world is my will; the world is my provocation. It is I who stir up the sea."[20]

The Xerxes Complex, in his perception, takes its name from the Persian leader who attempted to quell the Athenians at Thermopylae but finally capitulated at Salamis. When some of his troops drowned crossing the Hellespont, he ordered 500 lashes inflicted on the water. Similarly a child throws stones at the retreating sea, gaining a sense of power over an element, yet knowing when to flee as a new wave breaks. In both cases it is a complex of will, of wishing to punish someone or something unable to resist (even though the water is blissfully impervious to such ploys). This complex constellates whenever we blame other sources for our mistakes or stupidity. People who work for us, or young, dependent children are often foils for all our Xerxes tendencies. Against ourselves as well, we can invoke this complex through self-flagellation for presumed mistakes.

Bachelard invites us to probe the meaning of much we have always taken for granted in ourselves and in our world. In a era that often seems remarkably uncaring about the finer, more subtle textures and nuances of daily life, he is a mentor, a fresh voice teaching us how to appreciate the essence of substances, the soul of the world, the *anima mundi*, in all the multiplicity of its materiality.≈

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4. New York Times, (November 9, 1986).
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6. Gaston Bachelard, *The Flame of a Candle*, trans. Joni Caldwell (Dallas: The Dallas Institute Publications, 1988), 1.
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8. Bachelard, *Flame*, 43-44.
9. Bachelard, *Flame*, 43.
10. Bachelard, *Flame*, 19.
11. Bachelard, *Flame*, 43.
12. Bachelard, *Flame*, 60.
13. Robert Chapigny, *Modern French Criticism*, ed. J.K. Simon (Chicago: University of Chicago Press, 1972), 184.
14. Matthew Arnold, 'Hebraism and Hellenism', in *The Portable Matthew Arnold*, ed. Lionel Trilling (New York: Viking Press, 1949), 563.
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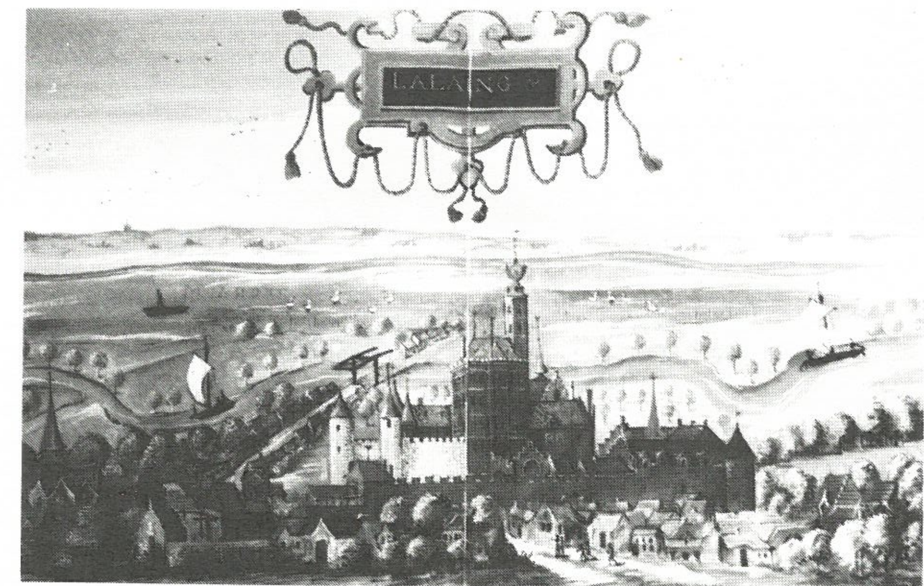
16. Gaston Bachelard, *Water and Dreams: An Essay of the Imagination of Matter*, trans. Edith Farrell (Dallas: The Pegasus Foundation, 1983), 107.
17. Bachelard, *Water*, 28.
18. Bachelard, *Water*, 54.
19. Bachelard, *Water*, 89.
20. Bachelard, *Water*, 168.

•REVERIES IN MURKY WATERS•

THE MATERIAL IMAGINATION

by ALAIN DUBLEUMORTIER



Native village of the author, now named Lallaing, from *Album de Croÿ*, painted around 1600. The river is now the canal.

Alain Dubleumortier was born in 1962 in the north of France and is now teaching philosophy in a high school near Bordeaux. Translated from the French by Mme Janet Saurel.

"Just as we communicate with each other through our dreams, we communicate through our childhood. Of childhood anything can be told. It is bound to be of interest."

Gaston Bachelard, *Earth and Reveries of Will.*

"If I set out to study the life of the images of water, I must give credit to the dominating role played by the rivers and springs of my homeland."

Gaston Bachelard, *Water and Dreams.*

It was Sunday afternoon and my parents and I had come to the local pond for a walk. In the pale April sun, the water, the sky and the foliage of the weeping willows had all taken on the same silvery green. Fisherman were dozing on the bank and a short distance behind them, their wives with coats draped over their shoulders, were chatting and drinking coffee. The nasal twang of a song from some forgotten radio could be heard in the background. We made frequent halts to greet the women and to have a look at the contents of the men's baskets. Once we had gone right around the pond, a further stop was necessary at the small hut

The canal at Lallaing

where a member of the fishing association sold beer and lemonade. My mother told me not to wander off because of the rat holes in the bank and my father forbade me to bother the fishermen. Then we set off home. It was on that day, I believe, that I made up my mind never to go back again to the pond with my parents.

I had just confusedly discovered the difference between the mind of an adult and that of a child, between a rationalised, almost lost, dreaming and the substantial dreaming of water. The reverie of an adult in front of the pond is one of surface and perimeter, a geometrical reverie. It is achieved dynamically by a walk around the water and is materially fulfilled in the contemplation of a fisherman with his rod staring at the float on the surface. It is a reverie which will fade away in the face of two rational preoccupations — hygiene and relaxation.

But when, during the long holiday afternoons, two or three friends and I rode our bicycles to the swamp — for we would call it the "swamp" and not the "pond" — there was not a fisherman in sight, and the refreshment bar was closed. Ignoring the rat holes, we would get as close as possible to the edge, and there, silent and motionless, our eyes would re-create vast volumes in the dark water. Never did we walk around the lake, even on that white winter morning when for the first time we discovered the pond was frozen over to its very centre. Like all true dreamers, like the dreamers of childhood, we pondered over the depth of this aquatic universe, not its diameter. And when imagination takes over, reason takes its leave. Although the adults had actually told us one evening the true depth of this artificial pond and how many lorries had been necessary to carry away the tonnes of rubble that had been bulldozed out of the ground, the following morning none of the heavy stones we threw into the water ever hit the bottom.

In that disillusioned world where I was born, in the north of France in 1962, there had been nothing 'natural' left in the landscape for centuries. A prehistoric agricultural tradition, the upheavals of the First World War, the mountainous slag heaps from the mines, all had contributed to this becoming a region devoid of vast forests and undisturbed waterfalls. It was a man's world, a worker's world, in which will-power was more in demand than imagination. But what the reading of Bachelard revealed to me years later was that imagination has the ability to "shape images that go beyond reality"[1], however trivial or tainted that reality might originally be.

Beside our "swamp" I told my companions what my father had told me: in his village there was also a pond, proudly dubbed "the sea". Far older and more mysterious, its seeming placidity was upset by malicious whirlpools which would snatch at the legs of the weaker or more foolhardy swimmers. And it was said that at the bottom lay an ancient city and that daring divers had brought up riveted boards and once even a handful of golden coins. As for us, in front of our poor, recently dug ditch, we covered up reality with our dreams and wondered, "and why not here?", so true it is that for a genuine dreamer, any stretch of water, however modest it may be, will hide in its depths a secret, a treasure, a drowned Atlantis.

I was to rediscover this power real dreamers have to renew adult legends, to reinvest the dead language of academic mythology with fresh images, through reading Jules Verne and H.P. Lovecraft. In several of Lovecraft's stories, lakes conceal foul ruins inhabited by doomed souls which will return to haunt the living. I rediscovered there my 'Atlantis complex', but with a negative, systematically evil orientation which is peculiar to Lovecraft and which renders reading him such an ordeal.[2]

Sometimes our outings would take us as far as the ditch which marked the boundary between the neighbouring village and ours. At the end of a long, straight road cut into the plain of cornfields, we would leave our bikes near the bridge and follow its massive piers down to the trickle of water. Many years later, whilst studying Jung and the interpretation of symbols, I recalled that we seldom enjoyed contemplating the water from the bridge and now I understood why. A dream *on* the bridge is a dream *of* the bridge and is different if you cross it or if you stop on it. A bridge that is crossed is an ancient image with a profound meaning, the very symbol of the heroic deed. Napoléon at Arcole, the battle of the bridge at Remagen, all such stories which are found in school history books are rooted in our memories because they are based on this archetype. It is of little importance whether the bridge spans a river, an abyss or hell. The ordeal is to cross it and the Hero and the Righteous do not stop.[3]

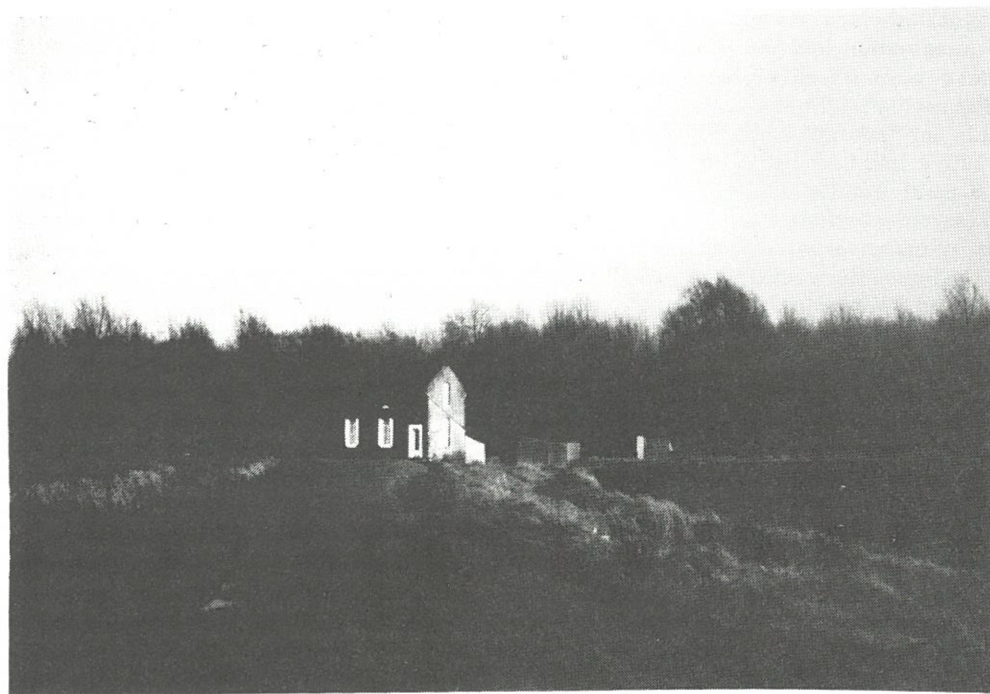
He who stops on the bridge accepts other images: the Hero is the bridge itself with its stalwart character, an alliance of subtlety and resistance. In this Promethean reverie, looking from the bridge reveals nothing of what is below but just strengthens man's proud feeling of safety experienced in the contemplation of his work and intelligence. Around this image will gather minds fascinated by technological feats like the Golden Gate, the Barqueta bridge in Seville, and all those railway bridges that materialise the strength of the imagination.[4]

But it was perfectly clear in childhood that the simple reverie of water was a reverie below and never on the bridge. The ditch to which we climbed down was far too narrow and far too shallow for a boat. In the summer, there was very often little more than a thin rivulet overgrown with duckweed and overcrowded with frogs. And there, our eyes inches away from this tainted water where animal and vegetable intermingled, under the strange celestial vault of the dark concrete bridge above, we conjured up jungles, bayous and mangroves where dragonflies became antediluvian monsters and sticklebacks turned into fabulous marauding sharks.

True reverie, substantial reverie, is a solitary musing. During visits to my father's parents, while the grown-ups gossiped, I would wander off around the house which stood on an isolated corner of a dirt road in the middle of vast marshlands scored by large drainage ditches. The heat, the stink and the flatness of the terrain combined to strengthen the inhumanity of the place and my childhood loneliness.[5] In these ditches — and what a relief it was then to remain on the bridge! — I saw muskrats as big as dogs and I stuck branches into the sickening mud where they would disappear in a rosary of black bubbles.

In this place it was tainted water that reigned; dangerous water, treacherous water, which for a child's soul was the symbol of evil and the result of some curse which would strike all those dwelling in this hopeless marshland.[6] I might have suspected my grandparents of carrying a gloomy burden in living in this place, and this would have rooted in my soul a sombre destiny, had there not existed within the house, as a symbol of redemption, a well from which my grandmother would draw a marvellously pure and fresh water, of which a single glass would have sufficed to quench the most diabolical thirst!

Heavy water, stagnant water, black water, were also familiar to me. It was the water of the canal. The limpid, fast-moving river where my parents had learned to swim had been dyked up



House of the author's grandparents, with bridge to the left.

and gauged. It was now just a trade route for the barges overflowing with coal and bound for the industrial centres. And like any other road, it was a long, black, motionless ribbon. There was no current and no gradient; only powerful engines could prevent the boats from getting stuck in the thick water. Never did we go further than a few hundred metres along the towpath. We only follow water which flows, each of us obeying his own curiosity; he who is guided by his 'animus'[7] seeks the source, the beginning. He who is driven by his 'anima' will go down "in the direction in which the water flows, water which leads to life elsewhere, to the neighbouring village"[8]. But the canal did not flow. It is there that I learned to throw ballast pebbles so that they would skim and glance off the water's flat, hard surface.

And yet this tamed water had its master, who knew how to get it moving. This powerful and fearsome guardian of the canal banks, the lock-keeper, was in charge of sifting the barges through his strange sieve. Master of the water which he could make rise and fall at will, he seemed to us a solitary, shrewd and taciturn being. Admittedly, at that time I knew nothing of Charon and his ferry of souls. But the muted fear which took hold of me when, hidden in the grass, I watched the lock-keeper, was deeply rooted in that distant image in which water and death are mingled. The coal tar which, thanks to the barges, flowed along the river, was the same as that which flowed through the veins of the miners, settling in their lungs and slowly suffocating them.

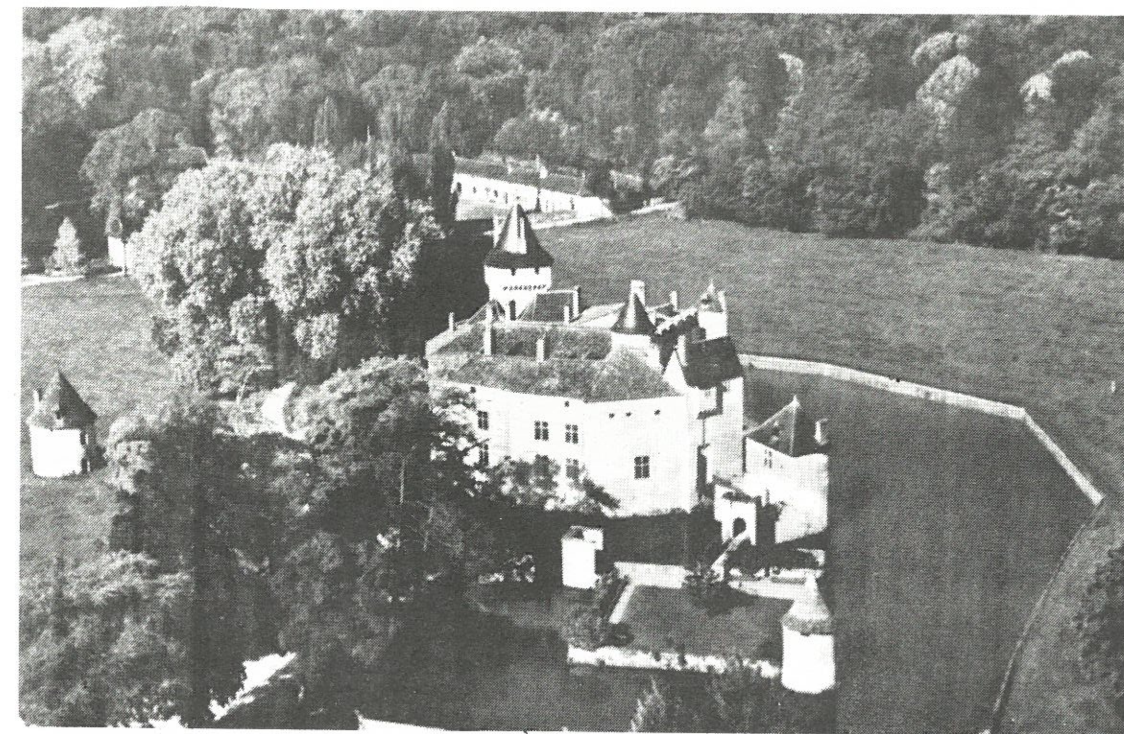
That is how places transformed by childhood fantasy provide experiences which an adult might consider pathetic or mundane but which can nevertheless touch a child's soul and enable him to discover some of the great images of the imaginary world. Perhaps such 'reveries in murky water' contribute to the development of a melancholy temperament. Two centuries ago, the philosopher Montesquieu claimed to have found a link between climate and character. Could we not include in this water in its various states and so say: tell me before which water you have dreamed, and I will tell you who you are. No doubt the reveries of a Basque country shepherd before a mountain stream will teach him to be impetuous, whereas my own musings on the ancient and stagnant waters which acted as the boundaries of the Western Roman Empire, produced in me the virtue of patience. This idea occurred to me while

visiting the place where Montesquieu had lived. It is a stocky, rather stern château surrounded by a moat of slumbering warm, green water. I imagined Montesquieu sitting on the parapet, dreaming in front of this water. And while throwing crumbs to the huge carps, which may already have been fed by the philosopher himself, I wondered whether perhaps I now understood where his diplomatic qualities came from...

"Dans vos viviers, dans vos étangs,
Carpes, que vous vivez longtemps!
Est-ce que la mort vous oublie,
Poissons de la mélancolie."[9] ≈

NOTES

1. L'eau et les rêves, Préface, VII.
2. It can be seen that this interpretation differs from that of Bachelard when he evokes "submerged steeples that keep on ringing" (L'eau et les rêves, The words of water.) These popular legends, from the Celtic myth of the town of Ys to contemporary novels of the fantastic, seem to me to belong to a special category of the imagination which it suited me to name "the Atlantis complex". For me the roots of the image are not to be found either in the dialectic of surface and depth or in the study of reflection made by Bachelard in his chapter "Deep waters".
3. Consider how many adventure films there are in which spies, explorers and super-warriors of all kinds jump across shaky bridges!
4. This symbolical diversity of the bridge may also be found in Monet's painting. Compare, for example, the 'Pont de l'Europe', 'Gare Saint-Lazare', 1877, with the 'Pont du chemin de fer á Argenteuil', and in particular the Japanese Bridge in the Giverny garden which finally vanishes into that pure, visual meditation on water that the 'Waterlilies' represents.
5. "This first loneliness, this childhood loneliness, leaves indelible traces in some souls. One's whole life is made sensitive for poetic reverie, for reverie that knows the price of solitude." Gaston Bachelard, "La Poetique de la Reverie".
6. "Tainted water, for the unconscious, is a receptacle of evil!" 'Water and Dreams", Purity and Purification.
7. Bachelard makes this distinction between the two ways of thinking in "La Poetique de la Reverie".
8. "L'eau et les rêves", Préface.
9. Guillaume Apollinaire, "Alcools"
"In your fishponds, in your pools,
Carps, how much you live!
Does Death neglect you,
Melancholic Fish?"



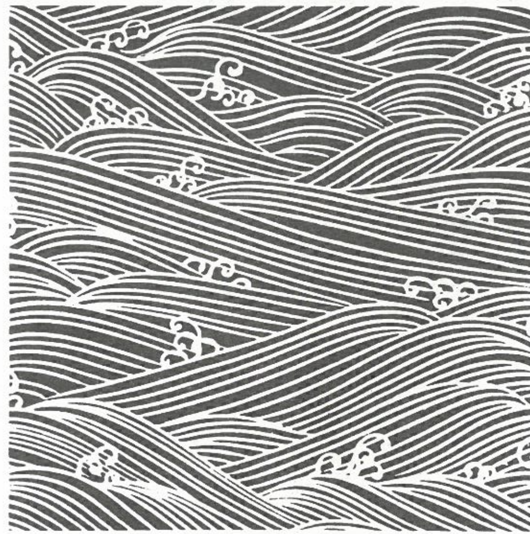
Châteaux de la Bréde, Gironde, where Montesquieu (1689-1755) lived.

•WATER•

THOUGHTS ON CREATING

"Water is the element of selfless contrast, it passively exists for others...water's existence is thus an existing-for-others...It is its fate to be something not yet specialised...and therefore it soon came to be called 'the mother of all that is special.'"

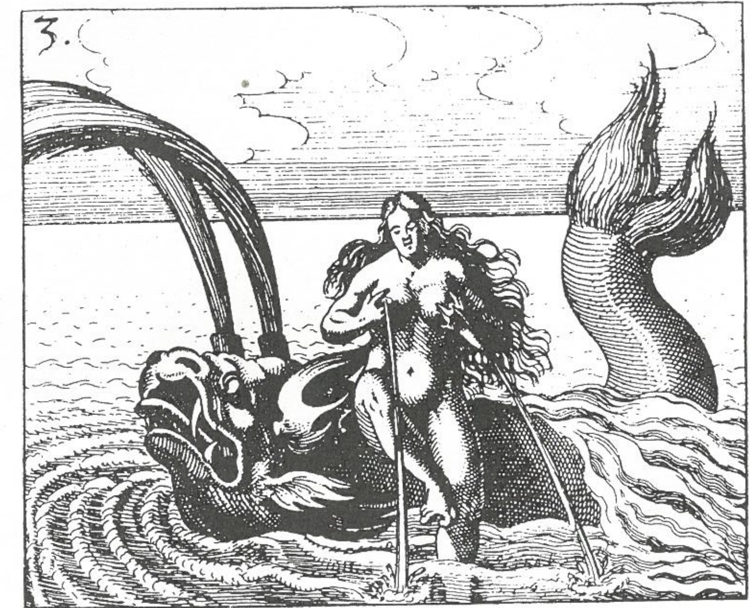
Hegel *Philosophy of Nature II*



Ogata Korin *Inkstone case with wave pattern*

"What door, what wall can bar me? Water scents water, and I am more liquid than it is,
It dissolves the earth, and compacted stone, and I too penetrate everywhere.
The water which made the earth unbinds its substance, the spirit which made the door unlocks it.
What is water, inert, compared to the spirit?
Its power, compared to the spirit's activity?
The material, compared to the workman?
I sense, I scent out, I unravel, I track down, I discover by instinct
How the thing is done! I, too, am filled with the god,
I am full of ignorance and genius!"

Paul Claudel *Five Great Odes*
"The Spirit and the Water"



The sea of renewal arising from virgin's milk. Symbolic representation of the life-giving power of the unconscious. From an alchemical text by Stolcius de Stolcenberg (1624).

"Nous [mind] is quickest of all, for it runs through everything."

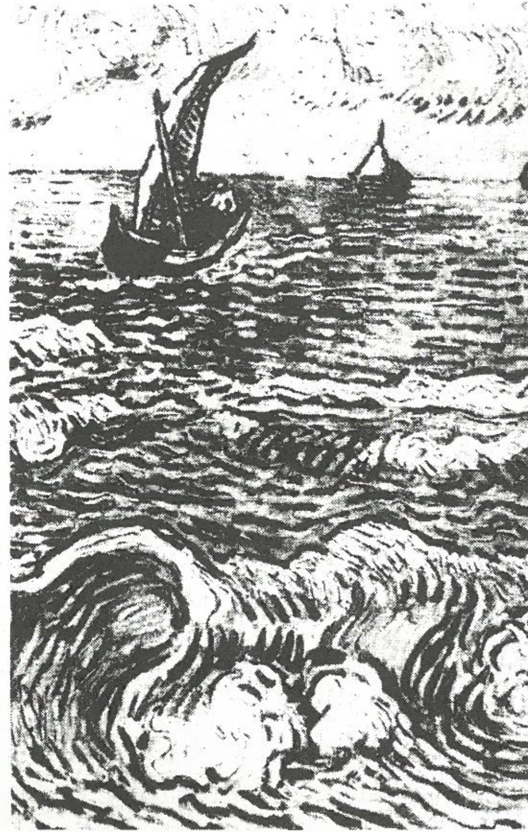
Thales the Milesian.

"For Aristotle, the soul takes on the form of that which it knows, and it has no form of its own before it knows. The mind, for both Thales and Aristotle, can know that which it is not because it is sufficiently 'supple' to take on the form of other things. But perhaps a more appropriate metaphor than 'supple' here would be to say that *nous* is sufficiently 'fluid' to take on the form of other things. *Nous* thus imitates water, by being able to run through and take on the form of all things. Water is the *unity* behind appearances, but it is not a rigid and static unity. It is literally *fluid*, a unity which can incorporate all forms. There is thus an affinity between mind and the *arche* of things which makes it of all things especially accessible to *nous*. Wisdom is possible, knowledge of the origin or structure of the whole is possible for man because there is a remarkable affinity, a similarity in nature, of mind and the structure of the whole. Thales in one step thus bridges the gap which had seemed an insurmountable obstacle for the earlier writers in trying to account for man's access to the divine. For Thales, too, called water "god".

D.A. Hyland *The Origins of Philosophy*

"The non-action of the wise man is not inaction.
It is not studied. It is not shaken by anything.
The sage is quiet because he is not moved,
Not because he *wills* to be quiet.
Still water is like glass.
You can look in it and see the bristles on your chin.
It is a perfect level;
A carpenter could use it.
If water is so clear, so level,
How much more the spirit of man?
The heart of the wise man is tranquil.
It is the mirror of heaven and earth
The glass of everything.
Emptiness, stillness, tranquillity, tastelessness,
Silence, non-action: this is the level of heaven and earth.
This is perfect Tao. Wise men find here
Their resting place.
Resting, they are empty."

Chuang Tzu *The Texts of Taoism*



Vincent van Gogh *The sea at Saintes-Maries*, oil on canvas, 1888.

"To the mythopoeic mind, water is the element in which the primal mysteries of all life dwell. Birth and death, past, present, and future intertwine their dances here. Where the sources of Becoming are, there too is prophecy. This is why the water spirits have the power of prophecy. And beauty omnipotent, the enchantment for whom all the treasure-houses of Becoming fling wide their gates — Aphrodite — rose out of the sea, begotten in the middle of the waves from the seed of Uranus. With water come vitality, re-invigoration, and nourishment to flood through all creation. The daughters of moisture, the nymphs of myth, nourish and care for the newly-born. Oceanus in the *Iliad* is called the father of the gods, yes, the universal father."

Walter F. Otto *Dionysus. Myth and Cult*

"The waters symbolise the universal sum of virtualities; they are *fons et origo*, "spring and origin," the reservoir of all the possibilities of existence; they precede every form and *support* every creation. One of the paradigmatic images of creation is the island that suddenly manifests itself in the midst of the waves. On the other hand, immersion in water signifies regression to the preformal, reincorporation into the undifferentiated mode of pre-existence. *E*mersion repeats the cosmogonic act of formal manifestation; *imm*ersion is equivalent to a dissolution of forms. This is why the symbolism of the waters implies both death and rebirth. Contact with water always brings a regeneration — on the one hand because dissolution is followed by a new birth, on the other because immersion fertilizes and multiplies the potential of life. The aquatic cosmology has its counterpart — on the human level — in the hylogenies, the beliefs according to which mankind was born of the waters. The Flood, or the periodical submersion of the continents (myths of the Atlantis type) have their counterpart on the human level, in man's "second death" (the "dampness" and the *leimon* — the "humid field" of the Underworld, and so on) or in initiatory death through baptism."

Mircea Eliade *The Sacred and the Profane*

"With [the] ability to enter thoughtfully into everything and to picture all things in the form of ideas, the process of thinking partakes in the laws of the formative processes of the universe. These are the same laws as at work in the fluid element, which renounces a form of its own and is prepared to enter into all things, to unite all things, to absorb all things.

Thinking that cannot enter deeply enough into every detail becomes a flight of ideas, torn along as though by an invisible torrent in which it can create no permanent forms. On the other hand, thinking that becomes solidified in fixed ideas remains a captive of form, without being able to develop towards further possibilities. Like water, thought can create forms, can unite and relate the forms to one another as ideas; it can unite, but also separate and analyse. The capacity of water in the realm of substance to dissolve and bind together reappears in thinking as a spiritual activity. Water and this spiritual activity of the human being belong together; the nature of the one is a picture of the other. Both can unite with the earth, while at the same time receiving the ideas of the universe, uniting and co-ordinating them"

"Not only does water give to the human being and to all living nature the basis for existence in a living body, but it pictures — as though in a great parable — higher qualities of man's development. Qualities such as the overcoming of rigidity in thought, of prejudice, of intolerance; the ability to enter into all things and to learn to understand them out of their own nature and to create out of polarities a higher unity; all these are aims of human striving which we can recognise also in the qualities of water."

Theodor Schwenk *Sensitive Chaos*

•STREAMWATCH•

A CREATIVE SCIENCE/ART PROGRAMME TO FACILITATE SOCIAL CHANGE

ART & ENVIRONMENT

by RENATO RAMSAY

James Miller *Streamwatch - Save Our Environment.*

Renato Ramsay is co-ordinator for Water Board Streamwatch. He has a background in science and community action programmes.

Streamwatch is an environmental education project based on scientific monitoring of the water quality of our various waterways. The water testing and subsequent action are carried out by school students and community groups using an action research methodology and operating in a context of social ecology. Links with the creative arts have been made and this article will show why the arts are a vital aspect of this programme.

Streamwatch operates collaboratively by engaging all the stakeholders in a situation, if possible from the beginning of a new project. We do this by encouraging the local coordinator of a new group to invite as many of the people involved as possible to the first training day. Local media are also invited and this publicity helps our groups get the message to the community about what they are doing to improve their environment.

Hence Streamwatch is not a data-gathering exercise, although it is based on data. "We think the creek stinks and someone ought to do something about it" is a less powerful statement than

"We have been monitoring the levels of faecal coliform bacteria in this stream for six months. Average results are around 700 cfu's per 100mL but for the last two weeks we have been getting around 10 000 cfu's per 100mL. We think we have a problem here." This kind of statement gets action happening quickly.

Briefly, this is how we operate. Following acceptance into the program, Streamwatch staff embark on a six month training program with staff and students at the secondary school or with members of the community organisation. The type of support involves establishing Keylink at the new location and providing training in how to use this Telecom on-line communication network. Telecom Australia sponsors this part of the program.

When the group is effectively using Keylink, we schedule their first technical training day. This is a "train the trainer" event where we train two or three teachers and a small group of students in how to do the nine basic water quality tests in Streamwatch. These tests include measurements for dissolved oxygen, biochemical oxygen demand, nitrates, total phosphorus, total solids, pH and faecal coliforms.

Once the group has established competency in these tests and is communicating their test results through Keylink, we return to provide additional training in our special macro-invertebrate sampling techniques. On the same day, we facilitate planning different ways of transforming the information which is being obtained about the environment into action to improve it. This process includes strategic questioning and visualisation. These techniques have led to great breakthroughs in the thinking of young people about how they can be effective in achieving their vision.

The last step in the formal training program includes a follow-up visit by Streamwatch staff to join in a lesson based on Streamwatch, where the group is a school, or just to listen to any difficulties which might have arisen while the group has been doing the testing on their own.

If the group is a school, Streamwatch will be happening during the formal teaching program within an existing subject at that school. The most common area is year 9 Science, but Streamwatch provides a rich resource for cross-curriculum initiatives. Many schools are developing programs which enable students to benefit from integrated learning in an experiential context.

As students move into years 11 and 12, they are able to use their enhanced skills to engage in increasingly important student research projects at an extremely high level. We regularly receive copies of student research reports in a range of subject areas which are astounding in their degree of sophistication and which have often resulted in big changes to the way the environment is managed.

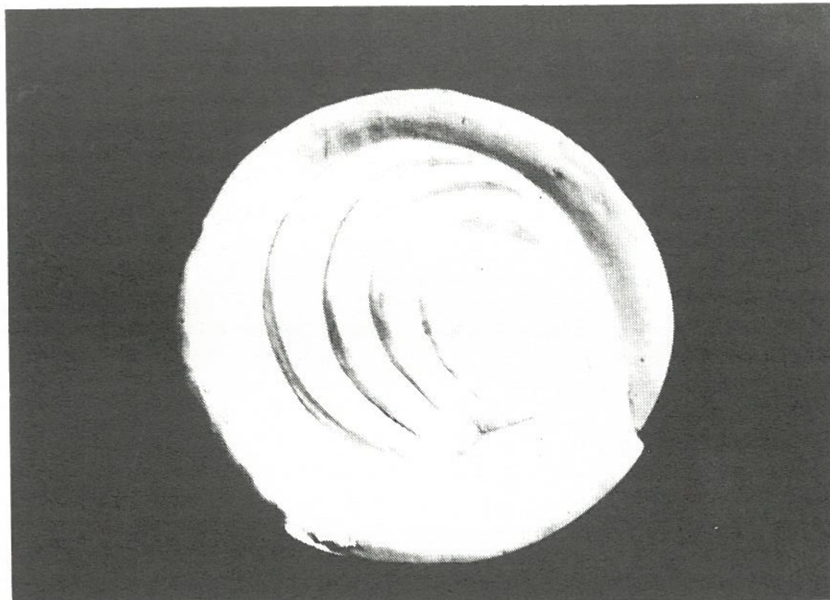
Streamwatch does not operate in the community in isolation. It is strongly linked with many community, government and local government agencies. It is supported by an increasing number of councils. Councils engage with us at all points across a spectrum of involvement from providing financial support for a local group to being a local coordinator for the Streamwatch groups in that catchment.

HOW DID IT ALL START?

Streamwatch follows a model first developed by Dr William Stapp at the University of Michigan. The program arose in response to demands by local high school students for better management of the Great Lakes. This program has developed into the Global Rivers Environmental Education Network (GREEN) which now operates at some level in about 150 countries around the world.

In Sydney, the program arose from an initiative of Dr Carolyn Pettigrew at the Water Board in conjunction with Sue Lennox at Freshwater High School following an action Sue held with Greenpeace in 1990.

Streamwatch is established in 130 community groups and schools in the Water Board area and in about 80 groups around NSW. Outside the Water Board area, Streamwatch is managed by the Department of Water Resources, the Department of Public Works and the Hunter Water Corporation together with the Hunter Catchment Management Trust. Community water quality monitoring is coordinated nationally by Waterwatch within the Australian Nature Conservation Agency.



Karen Maclean *Pollution on the Coffee table or on the Mantle Piece*, clay sculpture.

WHAT'S ART GOT TO DO WITH IT?

Establishing a programme based on the premise that most people desire to do what they believe to be good, or right, has led to the awareness that most of us will do this if we can. However many of us find that the resources we need to take effective action about issues of concern to us are unavailable to us.

Streamwatch has set about liberating these resources for the benefit of individuals and the community. These resources are sometimes material, but equally may be informational or procedural. The strength of our programme lies in our concrete approach to the thing at the outset — teaching people how to do scientific testing of water quality does not usually challenge attitudes. What we find is that after people have been doing scientific observations on a waterway of interest to them, they soon become very aware of the value of that waterway. They also become extremely protective of it.

But scientific monitoring is not for everyone. Some people in our community already have these concerns and are seeking other ways to share their feelings and opinions about what is right or valuable or important for them. This is why Streamwatch adopts a very broad approach to supporting action for the environment. Karen Maclean, one of the artists associated with the programme says:

"If we ask Black Australia why art is important in social change she might look a bit puzzled and then ask "When was it separated from the whole? The Land, the Law, the Dreamtime, the People?"

Streamwatch speaks to the water; artists speak to the people for the water. Like a tribal custom, we use multilevels to save our water.

We white westerners can be too necktie, separating mind from body, perpetuating separation of all universal phenomena. I was a farmer, moved from the land to the city with a part of me desperately wanting to share creatively my experiential knowing and love of the land through art. Sometimes tender moments of "original" thoughts or inventive fantasy related to nature feel like I've listened to something others dare not expose. Isn't this what artists are for? To dare expose what others fear to feel or express? Aren't adventurers in art and science a key to social change? And is this discussion about transforming art or is this a work of art transforming a process?"

An early link with art came from the link with Lisa

Sharkey, a photographer and graphic artist who designed our logo and stationery. Lisa kept us on cue as to the need for working with environmentally friendly materials wherever possible. She also provided the colours for the program — violet and orange.

Another artist who has worked with us from the early days is David Hackett, a cartoonist and illustrator. He describes his involvement:

"To bring widespread awareness to an ecological problem is always a positive action. By taking the process a step further, by giving it a name, a face, a smile, I believe breaks down any existing communication barriers.

People will more easily draw a parallel between themselves and a smiling character than consciously identify with an issue written on paper."

Katrina Bull is an arts educator who worked in special education at Cromehurst Special School. She showed her students the Streamwatch video, "Freshwater." This video provided stimulation to her students for a year's work . They wrote to the Water Board's Managing Director and created a series of art works, many of which were taken to the Special Arts Exhibition at Taiwan in 1992. Katrina says:

"Environmental art is all about educating, motivating, stimulating and transforming attitudes through a "visual/dynamic" medium, rather than a "verbal" medium. In the process of conducting the art activities, my students are learning about their world and environment. This provokes great discussion and interest. They in turn educate others through their sincere interest in the world around them. Art tells a story in the most forceful, nonverbal way possible."

Robin Craig is an environmental artist working on themes around water and urban development. She describes two of her works:

"*Proposal of Development Lot 5 Menangle* and *Fish Washed up on City Street* are about the darker aspects of human habitation and the effect that urban development is having on the environment both literally and symbolically.

Z Enzyme the Final Wash is a statement about the use of phosphorus chemicals and the effect they are having on our wildlife when they are allowed to pollute our water systems. Structures and objects are placed within the painting space to tell a story. Through painting I see the reality of urban development more clearly.

Lisa Sharkey *Watering Can, Stuart Town*, colour R3 print.

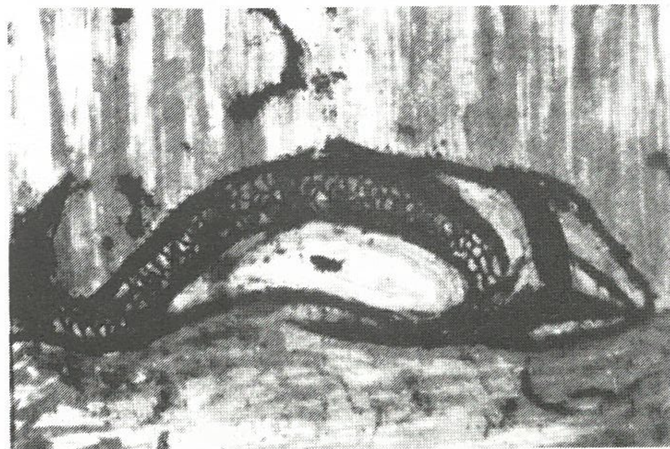
The picture space in *Proposal of Development Lot 5 Menangle* is crowded to capacity with building structures, pipes and wires. *Z Enzyme the Final Wash* and *Fish Washed up on City Street* are a reflection of the impact that this unrestricted development is having on our environment.

It is from my immediate environment that I draw inspiration for my artworks and the label, "environmental artist", reflects the gamut of my mixed media works. Because the environment is the drawing well of subject matter for my artwork it is important to me that it be protected."

Action Research does not preach a doctrine. It seeks predominantly to empower groups to achieve their vision more effectively. Jill Stovell is an artist whose work reflects this approach.

"My belief is that for a nation to take effective action on environmental issues, the local community must be mobilised. For this to happen, the individual must take responsibility for effecting change and for the individual to take responsibility he/she must be touched emotionally by these issues. As far as I can see the best way to touch people's hearts is through the arts. Music, dance, drama and fine arts all touch people in a way that the written word does not.

Art is about an emotional exchange between artist and observer. In this context terms like "good" and "bad" art lose their meaning and are replaced by the question "How does this painting make me feel". This is usually what will make a person like or dislike a painting. If we understand this about art then we will be able to apply these principles to other issues. "Pollution is bad" and "Pollution makes me feel sick" are very different statements. When pollution makes me feel sick enough I will do something about it. Art is very good at letting us see the sickness and the beauty in our every day lives."



Robin Craig *Z Enzyme the Final Wash*, oil paint, ink, on cartridge paper.

"Our Land and our Water Hold Memories" is the theme for a creative arts competition and travelling exhibition for people living on the land west of the Great Dividing Range. The competition is being run by the Department of Water Resources through Streamwatch and is being managed by Chris Herringe at Kandos High School. Chris says:

Robin Craig *Fish washed up on City Street*, oil paint, ink on stonehedge paper.

Robin Craig *Proposal of Development Lot 5 Menangle*, monotype, ink and shellac on cartridge paper.

"The Streamwatch kit is full of scientific testing devices reminiscent of Senior Science. Its results in mg/L and percentages communicate a message to the scientific mind. An aim of "Our Land and Our Water Hold Memories" is to diversify the Streamwatch message. Students and community members will develop a new range of creative symbols and images to express feelings which will be understood by a wider audience. The importance of nurturing our environment will be stressed from an expressive cultural aspect reinforced by a scientific base."

Streamwatch provides educational experiences in the rich context of our lives as members of a wider community. By embracing a wide and inclusive approach to providing material, informational and process resources, the programme attains a high output from its participants at a very low cost. As in the case of other community-based programmes in the environment, such as Greening Australia, Total Catchment Management and Landcare, there is a very high multiplier in terms of value per dollar invested. This is largely due to the ability of individuals to channel energy into those projects from which they obtain a high degree of joy and satisfaction.

Coupled with the value of the programme to the corporate goals of the bodies which support Streamwatch, this formula provides a model for those wishing to develop public participation in other areas of social change or public endeavour. Its success is a tribute to the ability of its participants to embrace new ways of approaching situations crying out for improvement.≈

Further information about Streamwatch is available from:

Water Board Streamwatch
Ph 02 350 5393
Fax 02 350 5543
Keylink <Stream.watch>

•RESTORING THE WATERS•

ART & ENVIRONMENT

by BARBARA SCHAFFER

Barbara Schaffer is a landscape architect who is working with the Australian Conservation Foundation on the Restoring the Waters Project, aimed at rehabilitating Sydney's stormwater canal system. She lives in Sydney.

"For the maintenance of the regional setting the green matrix is essential for the culture of cities. Where this setting has been defaced, despoiled or obliterated, the deterioration of the city must follow for the relationship is symbiotic."

Lewis Mumford *City in History*, 1961.

This is a story about water and city living. While the subject of drains may strike you as rather mundane and uninteresting, drains can reveal much that is of significance for us city dwellers. Most practically, and of immediate concern for Sydneysiders, is the problem of stormwater, the runoff from urban areas. This is currently channelled through a system of urban canals and underground pipes and is generally highly polluted by the time it reaches waterways such as the Harbour or the ocean.

Restoring the Waters is a project which aims at rehabilitating these canals through the gradual deconstruction of the existing network. It will provide an opportunity for the application of environment art as a way of restoring damaged ecosystems. In the process it will help to heal the psychological rift between nature and the city which is so evident in the structure of city life.

Without water a city cannot survive. Nutrient pollution of Australian waterways is a significant problem with resultant toxic and non-toxic algal blooms being reported increasingly. Sydney already has exceeded its water supply capacity and at the rate of current usage it would suffer severe disruption in a long drought. A new dam on the Shoalhaven River is in the planning stage and is already extremely contentious. Meanwhile, when it rains in Sydney, most of the water simply runs into the network of canals which crisscrosses the urban area and then into the Harbour or out to sea. Because it is so polluted, it cannot be used for domestic purposes and when dumped into the waterways it causes algal growth and contamination of marine life.

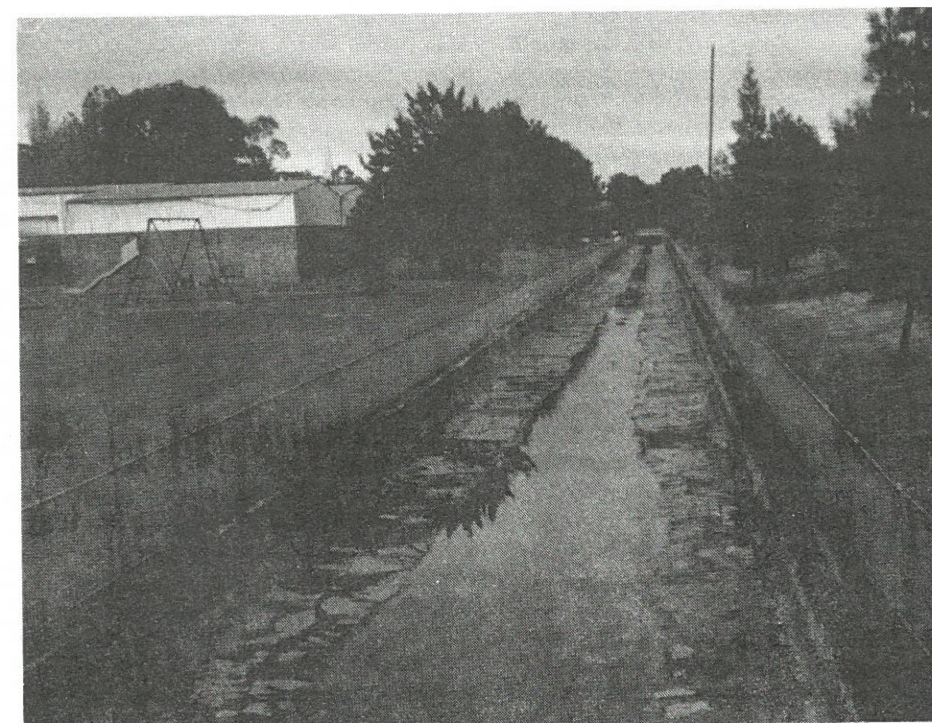
Water is a substance most people can easily relate to, a source energy, of comfort and delight. It is a universal symbol of life, purification and renewal; more than any other element it has the potential to forge a new emotional link between humanity and nature in the city. So, as we work towards the solutions of our urban water problems, we need to consider the greater significance of our relationship with water and try to bring about situations in which city dwellers have new

and diverse experiences of this element. To create an ecologically sustainable future we need to develop the ability to manage our water and land in an integrated manner; that is, in a way which both maintains the quality and quantity of water for people and for the ecosystems that support them, and which uplifts and inspires people. Environmental art is the highlighting of the essential values of a landscape; by giving expression to a 'poetics of place' such an art can help give people a point of reference within their landscapes.

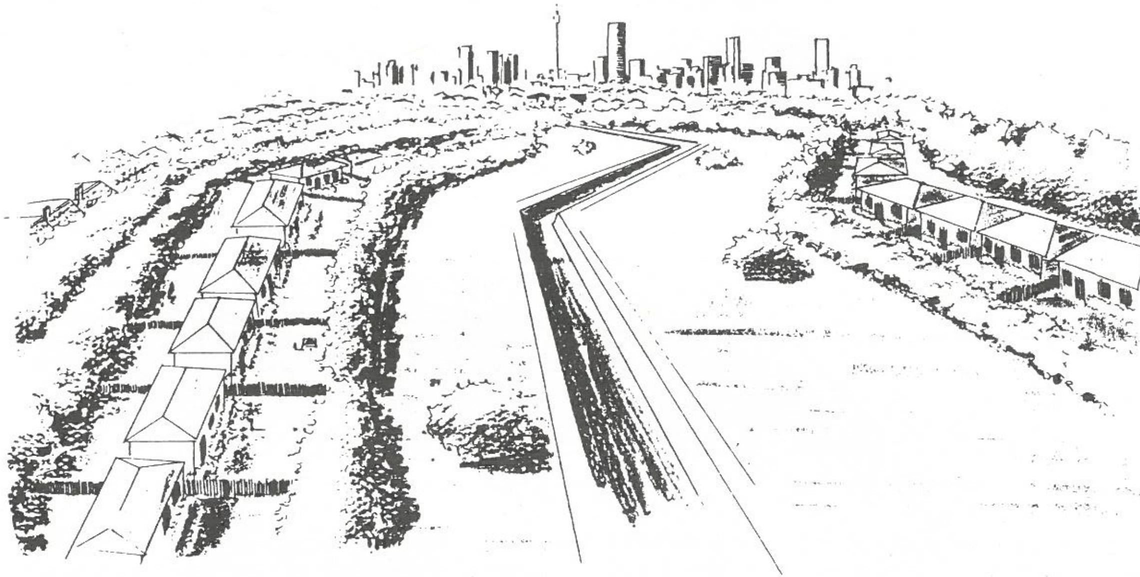
AS THE CREEKS ONCE FLOWED

The canals in Sydney are generally situated at low points in the landscape and mark the places where the creeks once flowed. All but the largest creeks and streams of Sydney's landscape have vanished from the map. Speaking to the older generation in any particular municipality, you can hear them lament over the creek that once was. They tell of how they used to play, fish and generally enjoy the whole environment of the creek, and of their disappointment when the day came for their creek to be canalised. In one fell swoop a habitat for trees, birds, animals and people alike was destroyed on the basis of an engineering 'solution'. What was not foreseen were the problems which were to arise from using these streams and aquifers as a sink for the unwanted by-products of human society. In most industrialised countries disposal of hazardous substances is now controlled by government regulation, but there is often great leniency given to companies that discharge waters into drains and creeks. Pollution from sewerage and other sources still finds its way into these canals.

Just as a river flows from the mountains to the sea, the urban canals run from the high points in the water catchment down to the larger waterways. The canal system resembles a mosaic covering the whole urban area, a network of artificial watercourses which people are hardly aware of. The reason is that, unlike creeks, there is nothing enticing about these canals. They are usually formed of straight sections with a constant cross-section. The bed and banks consist of man-made materials — concrete or brick, irons sheet or pipe. This system, scored into the urban landscape, has



One of the canals running into Rozelle Bay, Sydney.



Artist's impression of a Sydney canal before restoration. Drawing: Blake Willis.

two functions — to channel the stormwater as speedily as possible away from urban areas and to act as a flood mitigator. Associated with the canals are large easements; these are treeless, open grass areas, which are intended to protect surrounding houses against the possibility of floods. The canals and the surrounding easements have the potential of being restored to a condition which has something of the quality of the original creeks, an environment in which humans, animals and plants may flourish. Space currently open and without spirit can begin to tell a new story.

From observing undisturbed creeks and rivers, a lot can be learned which can help us go about restoring these areas. To begin with, creeks are never straight; they meander through the landscape. Trees generally line their banks and this reduces the growth of excessive vegetation and algae in the water by limiting the available light. Waterways in a natural condition accommodate the silt which flows into them and reeds and other marine plants act to purify the water by absorbing nutrients and pollutants. Natural creeks systems usually have adjacent billabongs or ponds which retain water in dry times and take in water in times of flood. Such environments attract a multitude of birds and animals and, being interconnected, allow the wildlife to move and spread. It is in and around such water environments that people have always found optimal places to grow food, finding here an ample supply of water and fertile soil. These are also places which are restful and rejuvenating, where people can enjoy the sounds and sights of living things and the play of water.

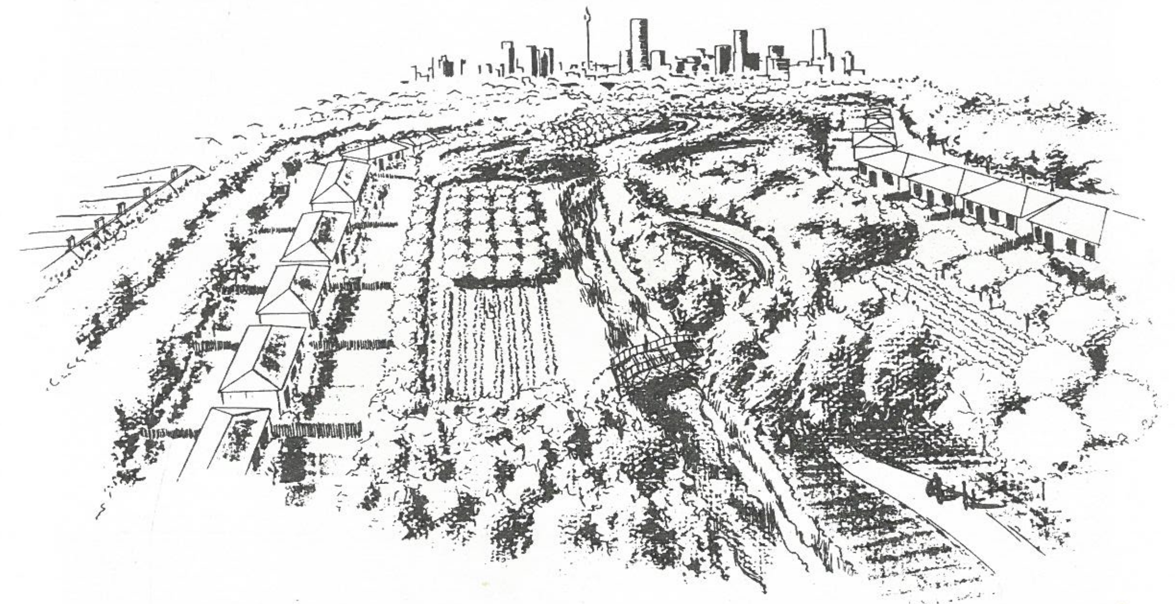
The question is, could we hope for such environments to be returned in our midst in this city? City dwellers usually feel they have to resign themselves to the changes which have taken place, depressing and ugly as they may be. It is true that the project to be outlined here for restoring these canals is visionary and possibly quite expensive to implement, but that doesn't make it unrealistic or impossible. One cannot afford to say that because an infrastructure is in place, that's the way it has to remain. Neither is it enough to say that in all newly developed areas the old mistakes will not be made. We have to find ways of working with an existing infrastructure in the developed parts of Sydney, to find creative ways of addressing the problem within the existing infrastructure. Related projects have already been undertaken in Europe[1] and there is no reason why they could not happen here in Australia.

A PLAN FOR RESTORATION

This plan takes advantage of the large areas of unused land that exist on either side of the canals.

The Restoring the Waters Project offers a strategy for achieving the ecologically sustainable management of stormwater. It is to be based on an integrated planning process whereby natural water courses and existing man-made drainage systems are interconnected to manage the quantity and improve the quality of the water. As presented in a proposal document at the N.S.W. Stormwater Forum in 1983[2], this plan has three stages. The first is to identify sources of funding and to form a small project team consisting of a project co-ordinator, an environmental engineer and a landscape architect. The second consists of identifying and planning a demonstration project in co-operation with a local community and government organisations. A drainage canal with sizeable easement is to be selected, one which would be appropriate for the development of constructed wetlands, retention ponds etc. The third stage involves the employment of local youth and other agencies to actually carry out the demonstration project.

The plan — eventually extending to the total canal network of Sydney — involves the deconstruction of the canals to reinstate the 'natural' water-courses. It aims to create more biologically diverse urban waterways which purify and control the movement of stormwater by incorporating well planned and appropriately placed artificially constructed wetlands, retention basins and sedimentation ponds. One can imagine that these would soon be filled with ducks and birds and other wildlife. In the place of the hardedged, linear canal mosaic would be one of ponds and wetlands, connected to a meandering streambed. These could become the locations of urban forests, food-producing areas and community gardens. Water could be diverted through 'Flowforms'[3] in order to increase the oxygen content and 'living' quality of the water which in turn could contribute to the proliferation of life forms. The maximum meander possible would be introduced to the stream bed, depending on the size of the easement. The whole system can be adapted for water purification measures, the larger easements becoming the site of extensive retention ponds and reed-bed systems. As the water passes from pond to pond it becomes increasingly pure. When the whole of Sydney's canal system is transformed in this way there would be an interconnected array of riverine



Artist's impression of the canal after restoration. Drawing: Blake Willis.

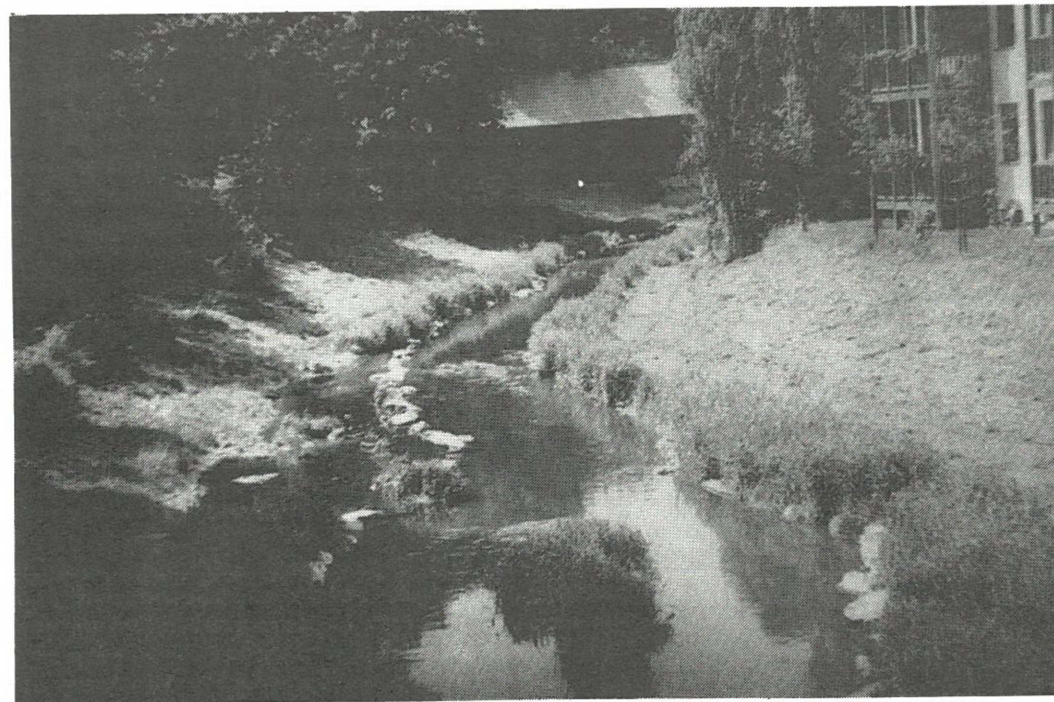
habitats, thus allowing the movement of wildlife through the urban landscape. As in natural streams, trees would be planted to shade the water-courses to minimise growth of unwanted vegetation.

Because of the new system's capacity to cleanse and store water, it will allow for the beneficial use of urban stormwater; for example, the irrigation of parks, gardens and food production areas. All along these rehabilitated canals, cycleways, walking tracks and parks can be established, creating new recreational opportunities and reinforcing the linkages between different canal environments. Because the water is flowing from the high points down to the waterways, all parts of the network would be linked over the tops of the ridges. Catchment by catchment, the process would incrementally transform the whole Sydney landscape so that a person would eventually be able to travel along these new routes from one side of the city to the other. All this space would be given back to the people of Sydney to enjoy and otherwise benefit from.

Of course the crucial question is whether canals converted in this way would adequately fulfil the function which they were constructed for in the first place — the effective removal of stormwater from urban areas. With the carefully planning of retention ponds this would indeed be possible. Rather than the polluted stormwater water rushing out straight into the waterways, it would be released more slowly through the reedbed systems which would gradually purify the water. There is now a great deal known about reedbed purification systems and macrophytic environments for the treatment of sewerage and other pollutants and work on this subject is ongoing in different parts of the world[4]. A reedbed system is able to purify household water wastes to a virtually drinkable state. In a more distant future there could perhaps be a separate water supply to the whole of Sydney for use on lawns and for other functions which do not require drinking-quality water.

THE 'POETICS OF PLACE' — AN ENVIRONMENTAL ART

Ecological rehabilitation is not the only aim of this project. It is intended that this restoration will create beautiful places that will stir the mind and

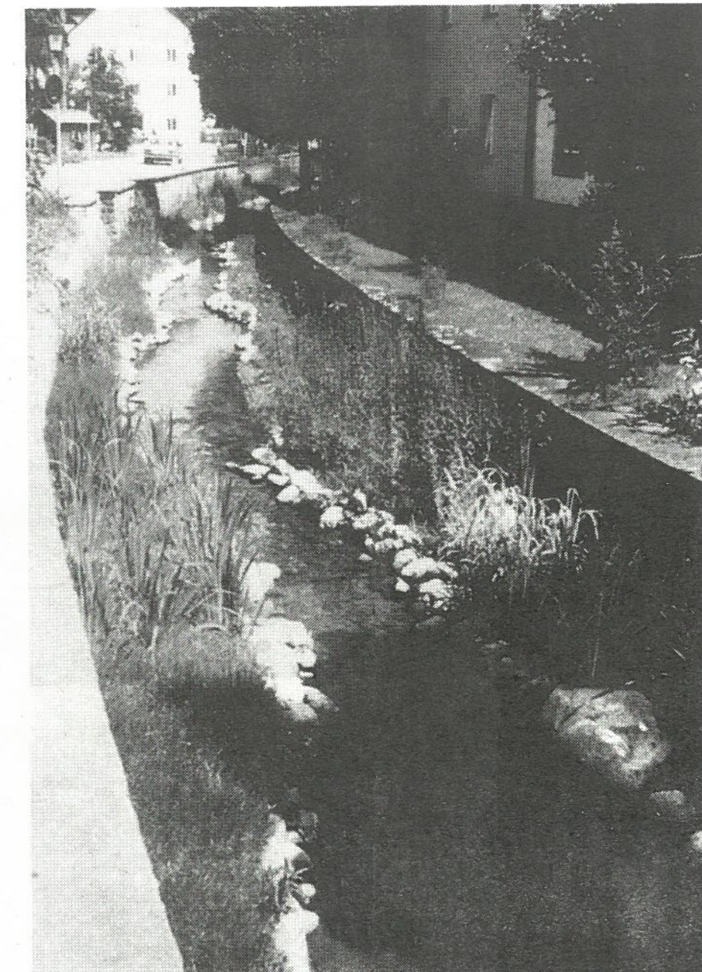


Near complete restoration of a canal in Bavaria, Germany.

spirit. In the most general sense it is an attempt to heal the rift between nature and this city; to this end a conception of environmental art is integral to the project.

The urban landscape is a mirror of our values — our basic principles and how we act on them. It is seldom acknowledged that the process by which cities regulate land and buildings is a reflection of unexamined assumptions, traditions, ideals and predilections. Environmental awareness means, amongst other things, examining these assumptions and predilections to come to a new understanding of the relationship of humanity and nature. The new ecological picture is of the city, suburbs and countryside as a single evolving system within nature, containing enormous diversity and yet inherently unified. The task of city design of the future is to fashion urban environments according to such a picture. Part of living in a great city is the experience of great contrasts and diversity, particularly with regard to variety of people who inhabit a modern metropolis. We should also be able to experience a diversity of connections between ourselves and nature within the city.

Environmental art can be understood as a



Partial restoration of a canal in Bavaria, Germany.

way of highlighting the 'poetics of place' and helping to reinstate the natural balance which has been breached by human interference. Only when regarded as a form of art can this project been seen in the light of its true potential. It is not merely a technical exercise; it is an act of creatively transforming the landscape. Trees, for instance, can be conceived as sculptural material that would over time form large scale compositions in the landscape. The whole network of canals across Sydney will never of themselves find their way back to a natural state. The task of restoring and re-enlivening this mosaic is an artwork on a large scale.

As with a composition such as a painting, what is required is a knowledge of relationships of all the elements involved. In the case of this project, the relationships are manifold. There are the connections to be forged between the local community, government organisations and other agencies in the physical development of the project. There is the relationship of the waterways to the life of the city as a whole. And then there are the diverse relationships between all the forms of life which will come to inhabit these waterways as they are rehabilitated as well as between the existing systems of soil and water. All of these things must be taken into account for this idea to be technically and ecologically viable. This is a vision of Sydney in the future and it may take a some time to be realised — but the first steps are already being taken.≈

NOTES

1. *Rivers and Streams*, Department of Water Resources, State of Bavaria, Germany, 1989.
2. "Restoring the Waters"; an Australian Conservation Foundation Project Proposal prepared by Sue Salmon, Brigit Dowsett and Barbara Schaffer.
3. See the accompanying article of 'Flowforms' in this issue.
4. Tortanäs, S. "Wetland Treatment of Stormwater" *AMBIO Journal of the Human Environment*, Royal Swedish Academy of Sciences, Vol. 22 No.7. Nov.1993.

Near complete restoration of a canal in Bavaria, Germany.

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•THE FLOWFORM METHOD•

ART & ENVIRONMENT

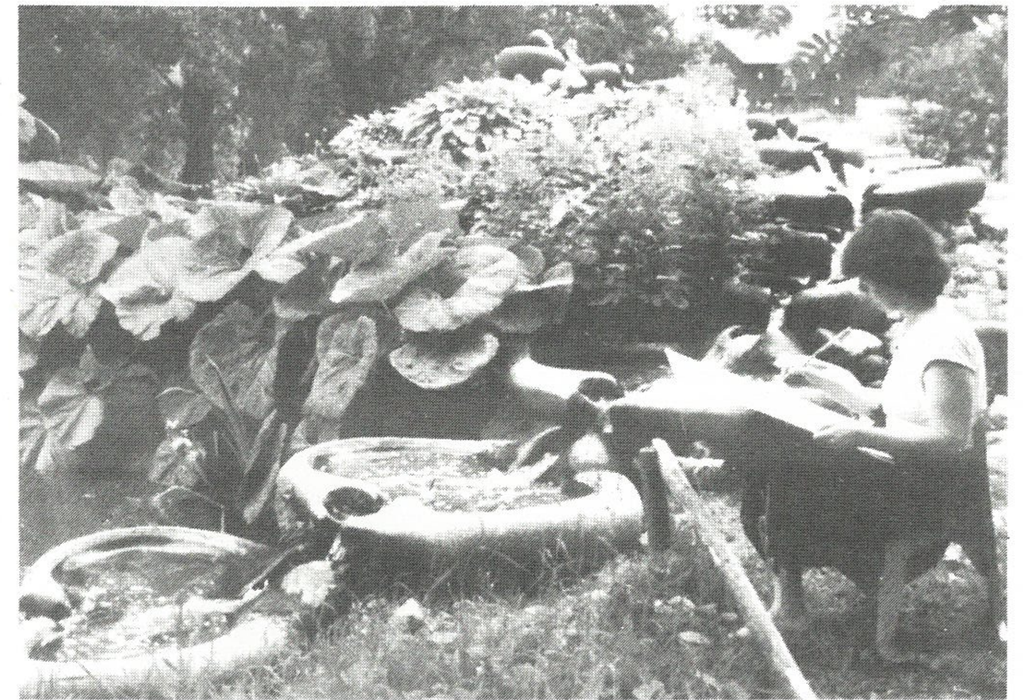
by JOHN WILKES

A. John Wilkes trained as a sculptor at the Royal College of Art; he is based at Emerson College and travels extensively. He is director of the Flow Design Research Group and Flowform Design Ltd, Emerson College, Forest Row, Sussex, RH18 5JX, England. References and articles have appeared in numerous publications in some twenty countries.

We know so little about the water we use so much! Only in crisis when we are deprived of it, inundated with it, or confronted with how much we have abused it , do we become aware of this element upon which every process — organic and technological — depends. Looking at a mountain stream, cascading through waterfalls and rapids, we experience water as though sparkling with a life of its own and realise that the water which flows from our taps is disappointing by comparison. What is our relationship to this ever-flowing medium? Transportation, industry, energy production and effluent treatment — all bear witness to water's increasing subservience to the forces of weight as opposed to its more creative role in relation to the forces of levity and spirit. The idea of a creative dimension to water may seem surprising because we are so used to thinking of it in terms of its chemical and physical properties, of relating to it through the practical ways in which it serves us. I believe that through understanding its creative potential we may learn to co-operate with this medium in completely new ways.

The natural water cycle has until fairly recent times maintained the earth's fresh water supplies. Left to its natural cycle it seems that water has the capacity to regenerate itself as a life-sustaining element. In fact the fresh water available is only an estimated 0.0195% of the earth's total water volume (that is, the fresh water on land, in the lakes and the streams, not that which is locked up in the ground, glaciers or the icecaps.) This extraordinarily small percentage of freely available fresh water is always being replenished through the hydrological cycle, from evaporation of the oceans and so forth. This condition has changed through the growth and concentration of population and industry as well as the indiscriminate use of water as a transporting and energy-generating medium.

Our rivers are either chemically, mechanically or thermally polluted and many no longer have any fish. In many parts of the world potable water has become a scarce commodity. In other parts, such as the Mississippi basin, the constant draining of subterranean water has contributed to the disastrous flooding of recent times and the washing



Rudolf Steinerseminariet, Jåma. Photo: Jan Arve Anderson.

away of topsoil. This adds up to a new situation in history, the critical point being that all these things together have made it impossible for nature alone to heal and regenerate itself. We have intensified these destructive processes so greatly that rivers cannot cope and the hydrological cycle can no longer maintain water's freshness for the whole of nature and human society.

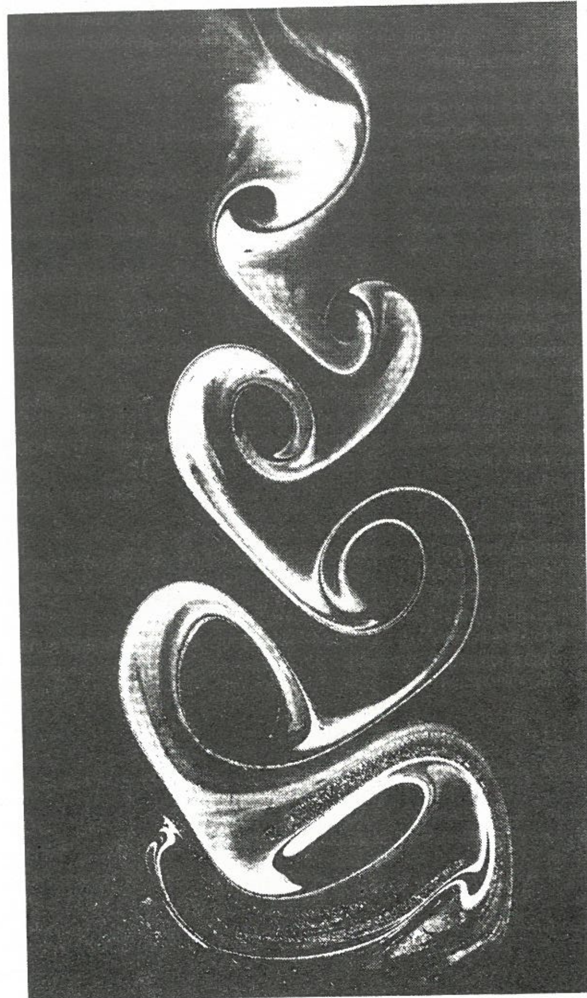
We usually turn to scientists or technicians to solve such problems yet artists can have a vital part to play. This depends, of course, on what the work of the artist is considered to be. As I understand it, the essential task of the artist is not only to comment on what exists in society nor merely to bring out thoughts and feelings (the usual phrase is 'to express oneself'). The artist is there to disclose those hidden aspects of natural and spiritual reality that are necessary for the enhancement of life — that is the traditional understanding of the task of the artist. It is a matter of what the human being should be saying in response to the world. All the current notions of self-expression act to obscure the responsibility we have of trying to understand where and how we are to take the world into the future. One is trying, as an artist, to learn about nature's secrets, to touch the realm out of which nature's forms are born. The question is, how do we work with those processes; how do we take them further as human beings? Nature is not free to be the artist as such, only the human being is free to be creative. Nature can only be, so to speak, creative in her own terms; a lion has to be a lion, a plant a plant — they cannot be anything else. It is the human being's task, as far as I can see, to take that creative process of nature further, to understand nature in such a way that its creative potential can be further realised.

In 1953, I met the mathematician George Adams, who was working with Goethe's approach to science as developed further by Steiner. With George Adams I was able to study Projective Geometry[1] and due to this was asked later to become his assistant when he joined with Theodor Schwenk and others to found the Institute for Flow Sciences in the Black Forest, Germany.[2] George Adams had been observing plant forms such as buds and had found that such growing surfaces are definable mathematically — he called them path-curve surfaces.[3] His idea was to bring water into a close relationship to them through movement in

order to imbue it with this quality of information. During the last thirty years it has become much clearer through the research of Lawrence Edwards that this approach could be very fruitful.[4]

My task in the laboratory from 1962 onwards was to construct models of these surfaces for practical applications. My interest in the study of form had led me in the early fifties — through my meeting with the scientist Ernst Lehrs — to the concept of metamorphosis. At that time it was most usual to study metamorphosis by working with the architectural and sculptural forms of the Goetheanum building.[5] Although the building presents many different aspects and types of metamorphosis the sevenfold sequence of capitals was the most commonly studied. Once introduced to this realm I became determined to study it on a broader basis and began a more intensive observation of plant morphology and anatomy.

As I was working with those things I was bringing them into relationship with fluid movements which are actually fundamental to all living processes. Nothing happens in the organic realm, and indeed any realm, without participation in a liquid formative process. We normally think of water as inherently formless, yet in fact it embodies a strong form-creating potential. This Theodor Schwenk describes in his book *Sensitive Chaos*. One example is the 'Wirbelstrasse', or 'path of vortices'. This may be demonstrated in a shallow



Path of vortices or 'Wirbelstrasse' (after Schwenk)

tank of water — to which glycerine has been added — by moving through the liquid in a straight line. It responds in a rhythmical left- and right-handed vortical process, which essentially arises out of the meander. It is made visible by initially dusting the surface with fine lycopodium powder. This sequence of changing vortices may be considered as a kind of archetypal metamorphic process.

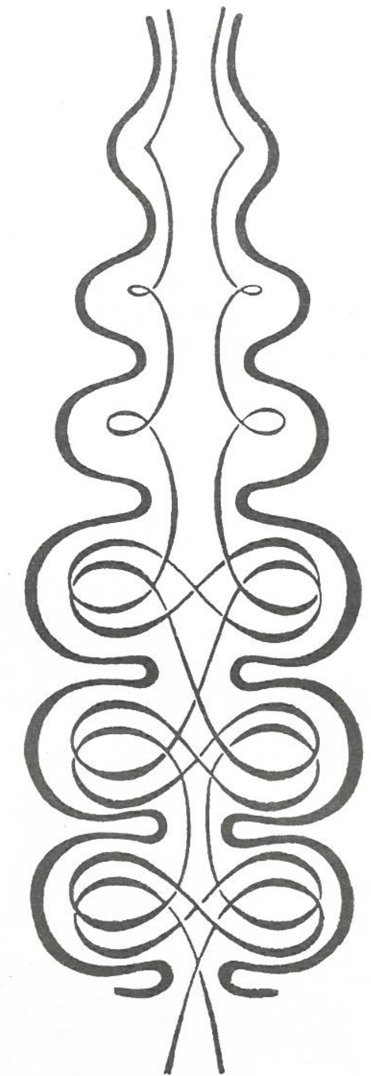
Metamorphosis in living organisms has to do with changing forms. One example is that of the leaves on the stem of a plant. The 'path of vortices' showed me that in water too, there is the potential for rhythmic, ordered movement. You can also see it if you look at the meandering rhythm of a river bed — however here the form is never 'held' as it is in the living world. A river does not reach that mode because there is always an element of disturbance and irregularity. In outer nature water is always becoming chaotic; it is not ordered in the sense in which a living organism is ordered.

The question I formulated as a result of such observations was as follows: "Would it be possible to create for water an 'organ' which would enable it to manifest this potential for order and metamorphosis?"

Another observable characteristic of water is that it generally moves asymmetrically. This is especially remarkable when considering living organisms which themselves depend upon it, but which tend towards symmetrical forms. This is an extraordinary step — from asymmetry to symmetry, from the inorganic to the organic. So my next questions were: "What happens if I offer water symmetry?" and "Could this in any way bring water closer to the living realm it supports?"

These questions led me to discover firstly that proportions generate rhythm and through this, to the development of the Flowform Method. I took the asymmetrical form of a meander, mirrored it and built a simple channel. The meander as such, develops out of the straight line and degenerates in the circling motion, usually constantly changing its proportions. So the channel was also built in this way. The result was a repeatedly narrowing and widening flume with lateral cavities gradually increasing in size. This, of course, does not happen in a river, but I did discover later that it resembles simple organ forms such as the heart of a beetle, which has symmetrically repeating cavities.

When water flows down a slope through such a channel the central stream causes it to rotate in the lateral cavities. At a certain place in this experiment, however, the specific proportions were such that rhythms appeared.



Development of the pulsating, lemniscatory movement in the Flowform (Wilkes).

The entrance and exit are normally separated by two laterally placed cavities, and the carefully proportioned exit creates a resistance which brings about a swinging of the stream alternately to the left and right, into and around the cavities. The vertical flow-path describes a figure-of-eight or lemniscate with a lobe in each cavity. The frequency of the rhythms varies with the size of the Flowform, while the character of the movement depends upon the shape. Flowforms are normally

designed empirically by following the movements of the water in order to maintain the rhythms. These must be self-generating and self-maintained, within the forms.

Having once mastered the Method, it was possible to introduce the above described mathematical surfaces into the system. The question remained as to whether these surfaces would have an effect upon water's life-sustaining capacities. To this was now added for me the question: "In what way do rhythms affect water and can we learn to work with them in such a way that support for living processes will be enhanced?"

In his book *Sensitive Chaos* and later with his Drop Picture Method, Theodor Schwenk demonstrates the infinite sensitivity with which water moves within itself. Remarkable as it may seem, movement in water apparently bears a direct relationship to its life-sustaining capacity. The water we normally consider to be most refreshing is that which we find in streams high in the mountains. Here the relationship of surface to flow is very high because there is relatively little water moving over many stones. In these places we have the most wonderful experience of water when it is full of movement, light, air, and it tastes good.

These streams then gather, becoming the mature river and gradually that rich vigorous movement is withdrawn from the water; there is a natural deterioration in the river system with

Seven-fold II Cascade, Tobias Arts Centre, East Grinstead, Sussex.
Design: Wilkes & Palm. Photo: J. Wilkes.

regard to movement. The movement is actually metamorphosed into the meander of the river, the 'vessel' built by the water which then in turn regulates the flow. Although this deterioration of movement is a natural process we exacerbate the situation enormously through our technology — for example by directing it along straight channels — to the point where it loses its life-supporting quality altogether.

In many cases, such as the river Rhine, the meanders have been straightened out because they were found inconvenient, so depriving the river of its self-regulating function and remaining vitality. Many technological advances have brought benefits of some kind but not necessarily positive side-effects.

It should be possible by introducing aspects of the natural cycle in the form of rich movements, and even an enhancement of these through rhythm, to raise the context of the water towards living processes. It is a question of the possibility of shortening the distance a river needs to maintain or enhance the quality of the water. The Flowform could be considered an 'organ' which would enhance the normal regenerating function of the river. Although large volumes can in theory be handled there is an obvious limit to a viable scale of treatment. We are learning from modern meteorological research that small influences can have major effects in climatic systems and I suspect this will also become increasingly evident in our understanding of fluid biological systems.

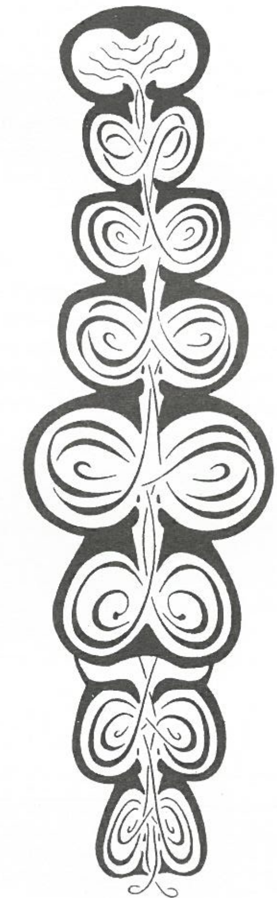
The river may be considered the heart of the hydrological cycle. In the potential rhythm of the meander a regulative sense organ is evident. It is in the very nature of water to meander its way through the landscape rather than twist and turn merely due to the obstructions lying in its way. This tendency can be seen in the homogeneous sandbeds on the coast or it can be demonstrated on a sloping glass surface.

The river lies between the three stages of contraction and three of expansion within the whole cycle. Water gently disappears from view into the atmosphere by evaporation. In simple terms the clouds, rain and confluent tributary systems display contractions into the river which then proceeds to expand in the delta, into the ocean and finally to evaporation. So our most dominant experience of water is one of flowing downwards until it settles in pond or ocean.

If we consider the Earth as an organism we have little difficulty in seeing this whole process in its taking-in and giving-out gesture as a kind of breathing process related to the watery element.

Metamorphosed into living form, this whole cycle of contraction and expansion can be seen in terms of a taking-in and digestion process, where nutrients are progressively carried into the blood which then, regulated by the heart, flows and expands throughout the organism and supports its life functions.

These pictures can be incorporated in numerous ways within a sevenfold 'organism' of Flowforms. The single Flowform demonstrates an expansion and contraction of the water between entrance and exit. Metamorphosed, this gesture appears as a sequence of seven forms embodying the essence of the total cycle. Such complexes, of which there are several, demonstrate the original idea of 'an organ of metamorphosis' mentioned above.



Seven-fold I Flowform Cascade with flow diagram.
Design: Wilkes & Wells.

"Research indicates that Flowforms could increase the efficiency of irrigation systems and improve germination, plant growth and food storage qualities."

Water flows naturally down a slope and cascades vertically. Far less frequently do we see it under pressure in nature, forced through heat into the air as a jet. This of course is very dramatic and has been taken up as a main theme in fountain-art. With the Flowform a more horizontal movement is emphasised, raised nevertheless through rhythm towards the realm of life and this we can feel in our own body as we watch. Can we perhaps achieve through observation a more intimate relationship to this precious substance?

Flowforms have been developed for a variety of applications. They combine aesthetic and functional/technological aspects and gradually, work with them reaches towards ever-deeper questions regarding water quality. Most installations have been made in concrete or reconstituted stone but other materials, such as stone, metal, glass, ceramics and plastics, are also possible. Flowforms have been used in landscaped settings — in gardens, courtyards, offices, both public and private — in schools and curative homes.

After some years of experiment the first major project with Flowform cascades was created in 1973 within a biological sewage system at Järna in Sweden. Here they were integrated into a lagoon system which cleanses water for a community of some 200 people. In the first lagoon a mineral breakdown of organic substance begins, initially anaerobic. Gradually the sludge is digested through the working of bacteria and higher and higher organisms. Oxygen is needed for an increasingly aerobic activity.

Situated on the Baltic coast, it was necessary to solve the problem of sewage disposal. The impulse of Arne Klingborg[6] was to do this in such a way that the function could be integrated into a beautiful park landscape, which people could enjoy rather than something from which they would shy away. The system still continues to be developed, extended and improved. Over the last decades lagoons and reed-beds for purification have become increasingly interesting due to the research of Prof. Seidel.[7] All grades of disposal are being implemented from sewage to surface water, where Flowforms can be useful.

As a result of the Järna project, the next, in contrast, was a large recreation feature for children in north Stockholm. These two projects demonstrated immediately the range of applications inspired by the Flowform.

Flowforms, especially in New Zealand through the pioneering work of Iain Trousdell and Peter Proctor, are now being used extensively in the mixing of special liquid preparations used in organic and Bio-dynamic farming and gardening. This impulse was begun in England and implemented initially on Tablehurst Farm, Emerson College. Investigations continue and for this purpose a new design based on the Adams related concept of 'Path-curve' surfaces is being prepared. This combines, in the context of rhythmical mixing, the watery vortex and the organic materials being used, by means of mathematically defined surfaces with the design of which Nick Thomas[8] has been helping us.

Research indicates that Flowforms could increase the efficiency of irrigation systems and improve germination, plant growth and food storage qualities. Work is also proceeding in a commercial food-processing context at Hermannsdorfer Landwerkstätten near Munich.

Each application requires considerable research, to develop Flowforms made of appropriate materials, with suitable rhythmical frequencies and movement gesture for the application in question. The overall purpose of Flowform research is to investigate rhythmical phenomena in water, and to develop and implement these discoveries artistically and scientifically especially in relation to support for the living world. We are still working to establish a centre and facilities — a Healing Place for Water — in which research, demonstration and training in the form of ecological conferences can be adequately carried out. Indeed such a reconciliation of art and science may lead us to a completely new way of appreciating the element of water. ≈

NOTES

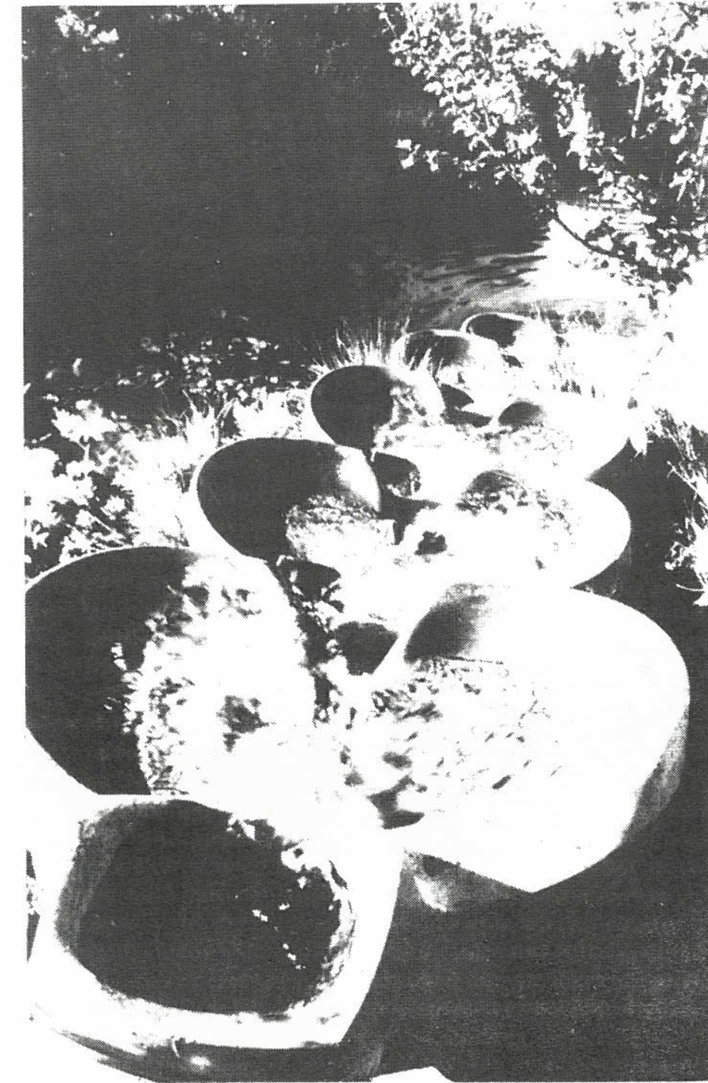
1. A modern synthetic geometry dedicated to the understanding of process and transformation. See George Adams & Olive Whicher *The Plant Between Sun and Earth.*

2. Institut für Strömungswissenschaften, Stutzhofweg 11, D-7881, Herrischried, Germany. (See the review in this issue of *Sensitive Chaos* by Theodor Schwenk— Ed.)
3. The mathematics of path-curve surfaces was first developed by George Klein in the 19th century.
4. *The Field of Form*, Floris Books, Lawrence Edwards, 1982, *The Vortex of Life*, 1993
5. The Goetheanum buildings in Dornach, Switzerland, designed by Rudolf Steiner.
6. Arne Klingborg, artist and educator, founder of the Rudolf Steiner Seminariet, Järna,
7. Professor Käthe Seidel, Director of the Limnological Institute, Max Planck, Krefeld University, Germany, up to the 1980s.
8. Nick Thomas, mathematical scientist and researcher, chairman of the Anthroposophical Society in Great Britain.

Nick Weidmann has been closely collaborating at Emerson College with Flowform Design since 1986.

Enquiries in Australia to Mark Baxter, Flow Research Group, 12 Alfred Rd, Brookvale, 2100.

Enquires in New Zealand to Iain Trousdell, P.O. Box 8364, Havelock North, Hawkes Bay.



Malmö Flowform, here shown at Sundet (Mösvatn), Norway. Used to increase oxygen content and generate rhythms in a stream of water. Photo: J. Wilkes.

•THE ADVENTURES OF DEW•

MYTH & SYMBOLISM

by MARIO SATZ

Mario Satz was born in 1944 in Buenos Aires, Argentina and is currently living in Barcelona, Spain. He studied the Kaballa, the Bible and Middle Eastern History in Jerusalem. His published works include collections of essays (i.e. *El lenguaje de los pájaros [The Language of the Brds]*, 1987, and *El arte de la naturleza [The Art of Nature]*, 1988), poetry (i.e. *Sámaras*, 1981 and *Las redes cristalinas [The Crystaline Nets]*, 1985) and novels (i.e. *Tierra [Earth]*, 1978) and *Marte [Mars]*, 1980). This essay was translated from the Spanish (original title *Las aventuras del rocío*.)

The old Irish magicians, the Sioux Indians, the Dervishes, the Amautas of the Andes, the Druids, the Jews and the Chinese, used to exercise their attentive gaze, a little before dawn, in the contemplation of something minimal yet important: the dew. Eagerly searching for the best position to observe, they waited till dawn's morning star, Venus, twinkling in solitude in the sky, sent its delicate rays to the petals and leaves and, in a slow descent, the air revealed its round and brilliant humidity in dreamy drops. At that exact moment they hastily gathered the medicinal dew, gift of immortality, remedy, panacea.

In the secret mountain K'uen-Luen, the wise Taoists believed there grew the 'tree of sweet dew' to which immortals went in search of shade, happiness and nourishment. They came from the island of Ho-che, these immortals — characters of peach, stick of bamboo, subtle brocade and long beards — they lived of air and of that minimal water which they imagined was of lunar origin, to which they attributed a singular quality, the same as they found in jade and pearls. Just as the human embryo takes nine moons to form, everything related to the light of the night has, when necessary, the capacity for autoregeneration: the tail of the lizard, sea-stars, the seams of living jade or the melancholy weeping of the moon within pearls. That's why — the secret of the oysters revealed — the Masters could profit from suffering, learn from wounds, cuts, irritation, pain. The fact that longevity and its corresponding metaphor, immortality, are more a lunar that a solar theme, is simply revealed by the ageing effects of an excess of heat on the skin and, conversely, the hydration produced, according to some therapies, by 'baths of moon', to which Greek hetairas, Byzantine empresses, and some famous Hollywood actresses, were addicted. Since dew, *lu* in Chinese, was a son of the moon, we are within a comprehensible and parallel semantic field. A magnetic field that dew fertilises in its slow falling.

A certain orthodox Greek monk wrote: "Water that springs from the heart, pervades completely man's interior with Divine dew." This sentence, besides referring to the 'Filocalia' or 'Hesicasta' meditation, harks back, through the oral and written teachings of Calixto II Xanthopoulos, to an older biblical tradition appearing explicitly in the famous Canticle of Moses from Deuteronomy 32 which starts with this invocation: "Fall like rain my teaching, like dew my word", and recurring in

the phrase from Isaiah 26:19: "Awake and sing, inhabitants of dust! Because your dew is a dew of light and life". Both sentences were commented on in the following passage from the Zohar, principal book of the Spanish Cabbala in the 13th century: "At the moment of the resurrection, the Creator will make a fall of dew upon the soil where the dead are buried, and then they will stand up. This dew comes from the Tree of Life and it is a dew of Light". The word used in the Bible for dew is *tal*. Read backwards it transforms into *lat*, meaning 'magic', 'sortilege'. On the other hand this Tree of Life has, like the sweet dew of the Chinese, the structure of an *axis mundi*, an 'axis of the world', since its top touches the sky and its roots grip the soil. We should understand the Zoharic reference to the resurrection the same way we do the Chinese notion of immortality: earthly existence implies a death that dew dissipates or dissolves, revealing in the contact a beyond. Since dew is, as Plino the Old said, "the saliva of the heavenly bodies", as one takes it in one knows the divine purposes from the very mouth of the gods. This beyond opened by the dew of light, glory of the morning, gives the initiate a multidimensional vision of reality. Something like a continuous happiness. A nirvana of transparent drops. Comprehending that mystery concerning the dew was how John the Baptist — maybe under an essenic influence — established the baptism, in Hebrew *tibel*; undoubtedly he knew that word changed into *tal-leb*, "dew of the heart" or "in the heart", for whoever received the ritual bath; this brings us back to the sentence of the monk Calixto II Xanthopoulos. Even nowadays baptism uses very little water to evoke a great meaning; that's precisely the characteristic of dew.

Confucius, who came to his idea of natural virtue as being the reflection of the cultural virtue produced by the melodic effects of his own *laud*, believed that dew can be called, invoked, whenever the four strings of that instrument sound a harmonious accord. The idea has substance since the strings of the Chinese *laud* are related to the four orients, the winds, the seasons, and especially

Li Longmian (1040-1106?) *Gods and Immortals in an Imaginary Landscape*, detail from handscroll, ink and colour on silk.

to cosmic stability. Thus we can imagine him seated in a private garden, presumably that of the duke of Tchú, while he observes the pink lotuses of a black pond or peonies opening above the heads of white pheasants. He asks justice of heaven, and patience of the pious earth that sustains him, for he knows that the humility of dew is dawn's jewel, and he intuits that that water of divine origin is neither a product of the rain, nor an emanation of fountains. Maybe it is, yes, the crying of the Great Mother of the West or the tears of the mythic Pan Kú, who sacrificed himself so man could be born. Confucius has the neat aspect of a mandarin but the hieratic Taoist smile of one who accepts the beauty of things because he understands the proportions between them and the beings that manipulate them.

The Indians of Northern America, among them the Sioux, believed that a Great Eagle of Dew, skimming over pines and bushes in its fluttering flight, distilled on them water from the heights, from beyond the clouds. As a consequence of that flight, the bad spirits retreated in fear, traces of the negative shadows. In his famous *Dictionary of Symbols,* J.E. Cirlot reminds us that the Tree of Life, associated with the dew in the *Zohar*, refers to the well-known myth of the 'tree that sings' and the compiler of the *Annals*, Kung-Tsé or Confucius, had the same musical concept of dew, as we have already seen. Portal tells us in his work on

The ritual collection of heavenly dew, from the *Mutus Liber*, an alchemical manuscript of the 16th century.

Egyptian hieroglyphics that the sign of dew conveyed the idea of superior 'teaching' or 'instruction' — something we have already seen expressed in the Bible — associating dew with celestial blessing. That's the reason why Daniel (4:25), interpreting the mysterious dream of King Nebuchadnezzar, says: "And with the dew of the heavens you shall be drenched", meaning that he was going to receive wisdom from on high — sublime, uranic. Not human.

Dew has its supreme moment at the beginning of spring. For agricultural purposes, its importance derives from the fact that it is gradual, that it moderates diurnal warming, and likewise, as keeper of the night, nocturnal cooling. Egyptians used dew mixed with honey to heal eye diseases, as if by a magic sympathy its translucent little spheres would possess a certain degree of clairvoyance; in absorbing them, the patient would be able to unglue his eyelids and easily dilate his pupils. Certain African myths attribute to fire-flies, knowers of the cold fire of the moon, the deposition of dew drops on acacia leaves. The females would fly, following the lines of the lunar rays, and, in solitude, in a gesture as majestic as imperceptible, they would touch with their green bellies the place where, at dawn, there would appear the miraculous tears. That's why it must be the women of the tribe who, using mirrors (the same procedure as the Taoist monks), collect the dew and prepare a fertility potion with it. If after the effort of the collection and its ingestion, the mother gives birth happily, then the tears of labour give back to the moon the water that generously was brought by the fire-flies.

Among the sons of the prophets, as the Bible calls the 'clairvoyants', there was the custom, parallel to the one of eating wild honey, of throwing some drops of well water mixed with dew onto withered moss or dry lichens, to observe at which point vegetal life — in fact the life of the nervous system — dies and revives in hydric cycles. To practise meditative skills in solitude, this custom took the prophets to the *wadis* of Judea, which stretch from Jerusalem to the Dead Sea, with the sole intention of learning there the art of rebirth that is given by the wisdom of silence, since solitude was a necessary precondition for the contemplation of the rebirth of moss. As 'green' and 'moon' (*iarok* and *iareaj*) had, in their eyes, two letters in common, *iod* and *reish*, knowledge of the 'Law' *(jok)* depended on the other two, the different ones.* The prophets believed, not only that the dew gave them celestial knowledge, but that, according to its

> "Since dew is, as Plino the Old said, 'the saliva of the heavenly bodies', as one takes it in one knows the divine purposes from the very mouth of the gods."

disposition on the herb, its quantity and frequency, it also offered an indication of the year's crop, giving in advance the thickness of the ears of wheat and size of the grapes.

Taoists, who to this day practise a kind of alchemic yoga, compare dew to the microscopic agent able to accelerate what they call "the circulation of light". Thus, for example, we read in a book by Lu K'uan Yu, *Taoist Yoga*, that: "The nectar or sweet dew *kan lu*, is produced much later, after the mixing of the four symbols (heaven, earth, prenatal and postnatal heart and abdomen), and the union of sun and moon. For that reason, he who knows how to join it will obtain this golden nectar and he who ignores it will obtain the white one (pure saliva)". The acquisition of this internal *kan lu*, is, perhaps, all that remains of the original Chinese myth which tells how immortals live from the external dew. Anyhow, it is interesting to observe that, true to the quaternarian conception of the Confucian lyre, they talk about four symbols which are in reality the origin of the four classical elements: fire, water, air and earth, which in conjunction generate the *quintessentia* of the alchemist, another of the names for dew.

Singular adventures, these of the minuscule terrestrial fellow that gladdens the rose petals, illuminates bark and petioles, covers with sidereal abundance our fields and gives to Andalucians, through their famous Virgin, what the month of April requires for the year to be good: water and a sweet Spring. Accustomed as we are to seeing in the big or majestic a symbol of the divine, of the sublime, we ignore most of our lives that what our foot often imprints in the garden or our hand may withdraw from the cherry in May, is, albeit small and humid, a dew of resurrection of which a few drops are enough to cheer the morning. ≈

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* *Iarok* (ירוק) *iareaj* (ירח) have in common the signs iod(י) and reish(ר). *Jok* (Law) is חוק.

•WATER SYMBOLISM, WHOLENESS & CREATIVITY•

MYTH & SYMBOLISM

by ANNE BUTTIMER

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"Water is the mistress of liquid language, of smooth flowing language, of continued and continuing language, of language that softens rhythm and gives a uniform substance to differing rhythms."
Gaston Bachelard *Water and Dreams*[1]

Cultures in both the Orient and Occident have used water symbols to reach a 'whole picture' of nature, to build the cosmologies and myths which justified, baptised, and steered their ways of life. Water commonly has been used to symbolise the 'whole' and also 'creation'; in myth these two are related. Water symbolism in diverse milieux offer route maps for the human journey toward wholeness and creativity. The challenge in these later years of the twentieth century, is not so much one of rationalising how particular 'wholes' are constituted or held together; rather, it is one of discovering ways beyond them toward a broader vision of humanity and world.

The most characteristically human activity of all is to transform direct experience into symbols, whether these be sound, taste, literature or numbers, in cave drawings, town plans, architecture or mosaics on Cathedral walls — symbolic transformations are the stuff of human creativity. It is human to make symbols, and it is quintessentially human to create and live by myths. The mytho-poetic way of knowing is the necessary complement to the rational way — one without the other is like a 'broken-winged bird afraid to fly'. However the interpretation of signs and symbols, so clear and efficient for the 'insider', may be a matter of scandal, shock, puzzlement, for the 'outsider'. It is a universally human trait to use one's categories to interpret the symbols of another. Symbols are obviously not enough in themselves to help us understand each other's sense of the whole. What we need to create, or rediscover, is a higher level of symbolic transformation than the one in which we now operate: a horizon of understanding which would enable us to language ourselves together toward appreciating diverse images of wholeness. We need something like what happened to those thousands of diverse people on the first Pentecost day after the 'pouring' out of the Holy Spirit: from Parthia and Media, from Mesopotamia, Judea and Cappadocia, from Pontus and Asia, from Phrygia and Pamphylia, from Egypt and from Rome, Crete and Arabia — suddenly all could understand the 'whole' and communicate as though they possessed a common vernacular.

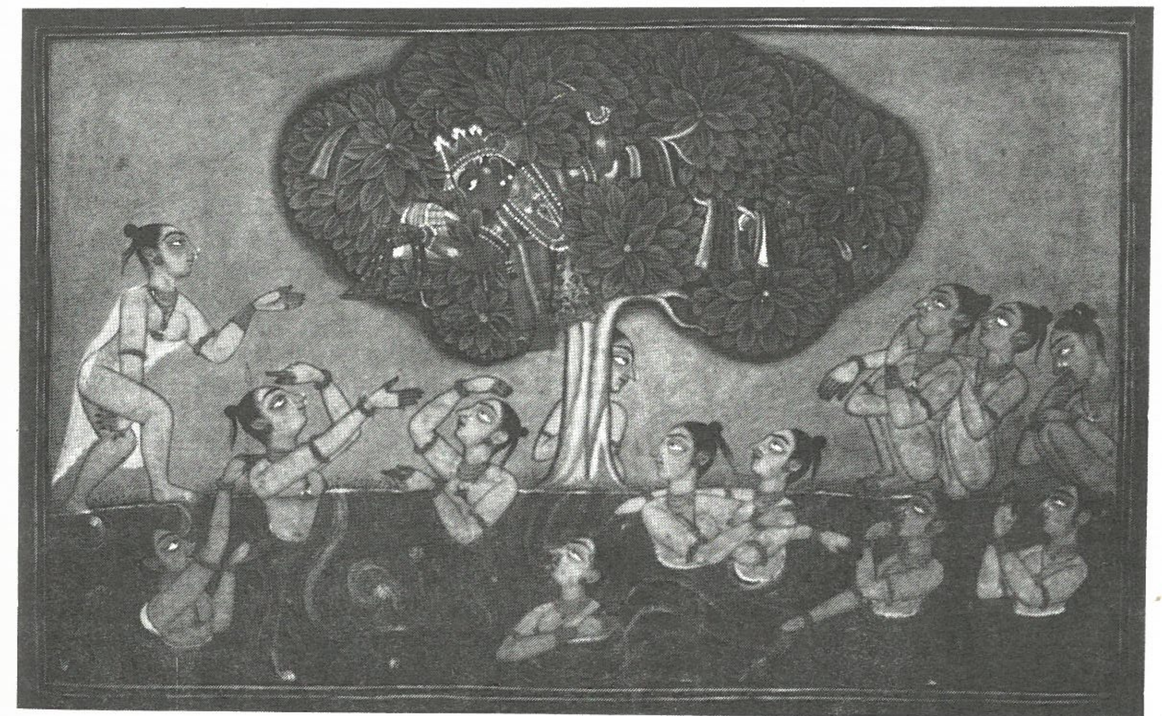
But apart from miracles, how can one envision a journey toward wholeness? We can look at our own experience — corporeal, social, and spiritual; we can look at the evolution of thought and practice within each of our fields of expertise, and then ask: what holds these various experiences together? It is in this emancipatory, lubricating sense that water symbolism may yield its greatest gift; that is, a thirst for something beyond those circumscribed wholes in which we all now live in our worlds of experience of expertise.

WATER SYMBOLS IN MYTH

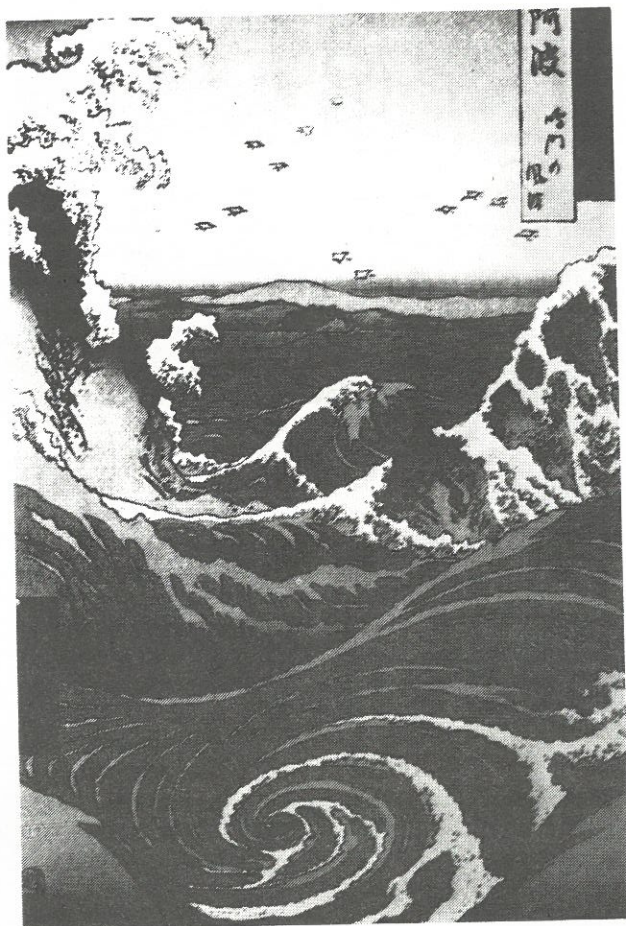
"Water remains a chaos until a creative story interprets its seeming equivocation as being the quivering ambiguity of life. Most myths of creation have as one of their main tasks the conjuring of water. This conjuring always seems to be a division. Just as the founder, by plowing the *sulcus primigenitus*, creates inhabitable space, so the creator, by dividing the waters, makes space for creation".
Ivan Illich *H_2O and the waters of forgetfulness*[2]

Thales, one of the earliest Western philosophers, once hypothesised that 'all is water'. In this one finds perhaps the best symbolic prototype of the perennial quest for simple propositions and unifying principles of the 'whole' which has characterised our Western intellectual heritage. Spinoza later sought to explain the whole in terms of one Ultimate Cause and thus reduce multiplicity to unity. What a contrast this is to the Oriental approach, where imagination and intuition have played a far greater role than the cerebral. While the West stubbornly pursued the route of empirical and hypothetico-deductive reasoning in its investigations of nature, the Orient appealed to art, music and poetry, to explore its world. The 12th century Chinese philosopher Han Cho declared that the fundamental aim of landscape painting, for example, was to display the 'principle of organisation connecting all things'.[3] A fundamental distinction needs to be made immediately, of course, between the philosophy of Tao, which advocated sensitivity to nature's own 'nature', and the Confucian which endeavoured to master it. From an intellectual viewpoint, however, it is instructive to see how important the aesthetic sense was for understanding the whole.

On Buddhist temples in Kyoto one can observe carvings which depict water turbulence — a puzzle which in the West became a central one for physics. A 17th century Japanese artist Kano Motobunu depicted the four moods of water: a mountain stream plunging into a waterfall which bursts into anger and then rolls away in a braided torrent.



Krishna with clothes of the cowgirls, Mankot, c.1700.



Ando Hiroshige *Whirlpool at Naruto in Awa Province*, colour woodcut, 1854.

Liquid motion can be seen in a 16th century Japanese silk painting which depicts rolling waves against the background of open sea. Via art, then, and an appeal to the human experience of particular milieux, the Oriental mind probed towards understanding the nature of water — the aesthetic door to knowledge seemed quite as important as the analytical and calculative. In most civilisations, indeed, one finds a blending of the intellectual with aesthetic, emotional and volitional faculties of understanding wholeness.

Ever since Xenophanes in the 6th century B. C. chided Homer and Hesiod for their 'mythological' expressions, the main thrust of Hellenic thought has been to empty *mythos* of all possible religious or metaphysical value. Myth has come to connote all that is false. Proper knowledge ('truth') required *logos* or at least *historia*. In Western traditions, both Christian and Socratic, myth has become suspect, the very opposite of truth. One might well wonder whether those capacities to regain touch with a mytho-poetic level of understanding have atrophied beyond repair. Atrophy, one hopes, does not signify death; to re-awaken tired muscles one can appeal to emotion as well as the aesthetic sense in gazing at how other civilisations have construed their 'wholes'.

Water plays a cardinal role in most Creation myths. In societies where myth is alive, Mircea Eliade tells us, there is a commonly held interpretation of how Creation happened *in illo tempore* (in the Beginning) and how it continues to unfold.[4] The big difference between such societies and so-called 'modern' ones, is that the latter are trapped in history; the former can live in a sacred history where the events of primordial time may be re-

enacted periodically.[5] Those among us who experience the Easter ceremonies, sing the Exsultet, and celebrate the Resurrection, can appreciate what this means. And water plays a central role in this sacred story. In the Judaeo-Christian account of Creation, it is the Spirit which breathes over the waters. When men disobeyed, a great flood came to cleanse the world. Water symbolises the Holy Spirit who comes to dwell within the believer upon Baptism. To the Samaritan woman at the well, Christ said: "whoever drinks the water that I will give him will never be thirsty again. The water that I will give him will become in him a spring which will provide him with living water, and give him eternal life".[6]

In Creation myths water is frequently associated with the female element, in reciprocal relationship to the male elements of Sky and Earth. But the story is usually suited to the normal life experience of men and women within particular physical milieux. For the Navajo Indians, living in a semi-arid environment, for example, the process of creation is seen to emerge through the conjunction of Mother Earth and Father Sky, the basic ingredients being cornmeal, pollen and powdered plants or flowers.[7] In Polynesia, where the Ocean is the ubiquitous horizon of life, one reads the following accounts of creation:

> "In the beginning there were only the Waters and Darkness. Io, the Supreme God, separated the waters by the power of thought and of his words, and created the Sky and the Earth. He said: "Let the Waters be separated, let the Heavens be formed, let the Earth be".[8]

By contrast, Japanese cosmology shows a heterogeneity of Kami (Gods) and levels of being, and the sacred lotus (floating on the ocean) assumes a central role. Water symbols, thus, show an attunement to both the bio-physical and cultural context.

A provocative contrast can be discerned between the Western account of Noah who, after the flood, gathered specimens of all living creatures into the Ark, and the Hindu account of Vishnu, incarnated as a Fish-God, who salvaged specimens of all vegetables and their seeds as well as all animal species.[9] "Since the Fish-God was incarnated in water," a contemporary Hindu scholar writes, "people believe that water is sacred."[10] Might one not speculate that for the Western mind sacredness is symbolised in fixed property (the Ark) whereas for the Hindu it involves immersion in the flowing water? On the level of myth, then, two contrasting images of wholeness emerge: one implying home, enclosure, and protection in time and place; the other implying movement, flow, immersion within the stream of life.[11] For the nomadic forebears of Judaeo-Christian symbolism, The Ark of the Covenant was a sealed box, eventually to be enshrined, enthroned, within temple or cathedral, whereas for the Hindu, holiness flowed within the waters, particularly in the sacred waters of the Ganges. "Water is greater than food", the Chandogya Upanishad (VII, x) sings, "Truly, earth and atmosphere and sky are nothing but water transmuted into different forms" ... "Who so reveres water as Brahman, obtains all his desires and will be well satisfied. He gains freedom of movement in the whole sphere of water — who so reveres water as Brahman".

For virtually all European nations, the Mediterranean has been the source of symbols. Long before it cradled the two most powerful mythological foundations of Western history (the Judaeo-Christian and the Socratic), the Middle East witnessed a succession of influences from the Asian heartland as well as the Fertile Crescent. From the heart of Asia comes the symbol of authority as 'hunter-warrior-king' — ruler of the hydraulic civilisations of the Tigris-Euphrates Delta; without that model of government Roman history might have taken a different course. In the religions of the Near East, water is central, either as ally or foe of human life. In Mesopotamia, the New Year festival celebrated the triumph of Marduk (God) over Tiamat (the dragon symbolising the primordial ocean). Each new year shared something of the first day of creation when the cycle of seasons started. The beginning was organically linked with an end which preceded it, as the Chaos preceding creation. For something new to begin, the vestiges and ruins of the old must be completely destroyed. For Egyptians, too, the New Year symbolised Creation. The Jewish New Year (Yom Kippur) brought the enthronement of Yahweh as king of the world, the symbolic victory over his enemies — both the forces of chaos (ocean) and the historical enemies of Israel.

From the Middle East hearth comes not only Yahweh, but also Socrates as progenitor of Western myths about truth and being. An important distinction, of course, needs to be made between the dialectical and fluid world of the pre-Socratics, and the fixed cosmologies of the Socratics. Compare Empedocles, for instance:

> "He makes the material elements four in number: fire, air, water, earth, all eternal, but changing in bulk and scarcity through mixture and separation; but his real first principles, which impart motion to these, are *love* and *strife*. The elements are continually subject to an alternate change, at one time mixed together by Love, at another separated by Strife, so that the first principles are, by his account, six in numbers."[12]

with Plato:

> "Now of the four elements the construction of the cosmos had taken up the whole of every one. For its Constructor had constructed it of all the fire and water and air and earth that existed, leaving over, outside it, no single particle or potency of any one of these elements. And these were his intentions: first, that it might be, so far as possible, a Living Creature, perfect and whole, with all its parts perfect; and next, that it might be One, in as much as there was nothing left over out of which another like Creature might come into existence; and further, that it might be secure from age and ailment . . . Wherefore . . . He fashioned it to be One Single Whole, compounded of all wholes, perfect and ageless and unailing."[13]

The dynamic and constantly changing world of the pre-Socratics becomes a unified Cosmos, with a fixed geometry and physics, for the Socratics.

From out of that same cultural hearth diffused another stream of cosmological development — that of the Islamic world. The Qu'ran says: "We made from water every living thing" (Qu'ran 21:30) and "It is He (God) who sends down rain from the sky from it ye drink and out of which grows the vegetation on which ye feed your cattle" (16:10). Water, in Islamic cosmology, is seen as the source of life, coming down from heavens to earth. But a clear distinction is made between water as flowing, pouring, strong, abundant, incorruptible and blessed on the one hand, and water as stagnant, lost, obscure, salty, bitter, boiling and despised on the other (Qu'ran 22:45). One of the worst penances for a sinner, for example, is to be thrown to the bottom of the well (12:10, 12:5). Paradise is full of springs from which believers drink. On earth, big rivers are obstacles in war for enemies to cross, and a source of danger underneath. The ocean (sea) in the Qu'ran is a symbol of the omniscience and omnipotence of God. The sea is also, of course, a field of action for men who can be guided by the stars. Man needs vessels, ports, and stars to cross the sea. Man eats from the sea, even drinks, if he can de-salinise the water, drowns or is safe.

The study of nature was considered as an essential part of education: nature was regarded as the handiwork of God, a purposeful domain in which the power and wisdom of the Creator is manifested. In Islamic cosmology elements of both Hindu cosmology and Aristotelian metaphysics can easily be discerned: the world in becoming and its relation to being. The Universe at all levels emanates from Pure Being and ultimately returns to it. But there was another element: knowledge is operative (e.g., in Ibn Sina's cosmology), it is a process by which the being of the knower is transformed. Nature becomes a background for the gnostic's journey — the symbolic pilgrimage from pure matter (Occident) to pure form (Orient) and the means of deliverance. Creation, in fact, is the bringing into being of multiplicity from Unity, while gnosis is the complimentary phase of the integration of the particular into the Universal.[14]

> "On the level of myth...two contrasting images of wholeness emerge: one implying home, enclosure, and protection in time and place; the other implying movement, flow, immersion within the stream of life."

KNOWLEDGE AND CREATIVITY IN WESTERN CULTURE

Permeating Western myths and symbols are certain key images of nature, varying over time, which have provided a kind of canvas, or framework, for creative activity during successive periods. In these key metaphors for the whole which were built on symbols of nature — particularly those of water — one can find evidence of changing societal

understandings and lurking assumptions about the nature of being itself. Four root metaphors have captured Western imaginations: (1) nature as *mosaic*, or as *text* to be read by all humans, evidenced, for example, in the balancing of moistures; (2) nature as *organism*, demonstrated primarily in the analogy to the human body; (3) nature as *machine*, evidenced through scientific experiments in alchemy and hydrology; (4) nature as *arena* or as *theatre of events*, which stages spontaneous and unpredictable happenings. In each of these visions of the whole there are claims to truth; each implies a programme for art, theology, philosophy and science.[15]

1. Nature as *mosaic* or as *text*

Babylonians considered the stars as the 'writing of the sky'. Arabs calculated time according to the stars. For the first millennium of European history one could say that Nature was 'read' in terms of how well it displayed God's ultimate plan for humanity on earth. Paul (Romans) claimed that because God's truths are so plainly written in his Creation, pagans could not plead ignorance of Him. Augustine claimed that Plato and others were not excluded from a knowledge of God because they could know His creation. "Some peoples, in order to discover God, read books", Augustine wrote:

> "... but there is a great book: the very appearance of created things. Look above you. Look below you. Note it, read it. God, whom you want to discover, never wrote that book with ink; instead He set before your eyes the things that He had made. Can you ask for a louder voice than that?"[16]

In Medieval times geographers were considered 'the anatomists of the Great World'[17] and their aim was to describe the forms of land and water, human landscapes and social forms, all in terms of 'fit'; that is, how human civilisations adapted themselves to the natural environment. The Greeks had already paved the way by classifying the earth into zones (*klimata*) of varying appropriateness for human life. The proper functioning of the human body, as well as that of society, demanded a careful balance of the humours (moistures) and this demanded a sensitive attunement to milieu, especially to climate.

Viewing Nature as a book implies that there is an author, therefore natural forms were legible, and reflective of that author's intentions. A book also attempts to communicate some meaning — features of the world possess meanings which are not always obvious. A book is written in legible characters, so something in nature must be found to correspond with these. The programme for the medieval artist was intimately linked with that of the theologian — to decipher the world, to find the characters in the book of Creation which spoke symbolically of God's truth. We see this in the illuminations and reliefs of the period. At this stage the artist was not a creator but an *imitator* of nature; only God himself could be considered as a Creator. Augustine declared that the business of the artists is merely "collecting traces of beauty". Robert Grosseteste, in the 13th century, declared that since art imitates nature, and nature always acts in the best possible ways, therefore art too is flawless even as nature is.[18] The 'text' metaphor made sense economically, socially, and ecologically; it 'worked'. A good deal of the Christian liturgy, particularly the sanctoral cycle, shows an ingenious harmony of earth and heaven, the perfect 'fit' of human life and the Divine.

2. Nature as *organism*

In the 16th century a vast new world opened up as the ocean was gradually mastered. Political imaginations flew to the prospect of 'world' empires: Portugal, Spain, Belgium, France, England send out their antennae for conquest. Throughout European history, of course, the sea had always offered horizons of opportunity, counterpoint to the settled, secure, land-based ones. Skills for overcoming physical constraints of mountain and moor could be passed on orally from generation to generation, but to build cumulative knowledge of the sea demanded a scientific attitude.[19] The 16th century also witnessed enormous upheavals in religious, military, and economic life; the Renaissance was flowering, the Reformation in full course and, with them came a radically different image of nature. Prior to the 16th century people may have looked to nature for signs of something else; now they studied it for its own sake.[20] The world was viewed from an anthropocentric rather than a theocentric vantage point. The human body now became the symbol of perfection: men and women were themselves the image of the cosmos.[21]

In the Renaissance version of water symbols and the 'whole', nature's work of art could be understood from one's body. The human body provided an excellent model: it is composed of many parts yet it is one; analogy to the life cycle could enable one to conceptualise change over time; the

> "The programme for the medieval artist was intimately linked with that of the theologian — to decipher the world, to find the characters in the book of Creation which spoke symbolically of God's truth."

same principles of order could be postulated for both natural and human life. Bruno said, "in every man . . . a world, a universe, regards itself". Hence another principle: to know oneself meant knowing the world. Adherents of this view included eminent individuals such as Leonardo, Gilbert and Kepler. In many ways this view echoes elements of Arab thought, imported possibly via Aquinas and developed by Albert.[22] The cosmos was now thought to possess life, intelligence and soul; it goes through the stages of infancy, youth, maturity, and old age; it has skin, hair, a heart, stomach, veins and arteries.[23] Leonardo wrote: "The body of the earth, like the bodies of animals, is intersected with ramifications of veins which are all in connection and are constituted to give nutriment and life to the earth and its creatures. These come from the depths of the sea and, after many revolutions, have to return by the rivers created by the bursting of these veins high up."[24]

The most important aspect of Renaissance was the belief in man's freedom, through reason, to determine human values for himself. Artists such as Michelangelo, Raphael, and Leonardo believed that the artist 'thinks up' and employs shapes which are not in nature, that he realises his own vision. In other words, the artist was considered more like a true creator than merely an imitator.[25] Art works of that period express the perfection of the human body and the independence the human mind. In the Renaissance view, to know the world people had to know themselves and to change it, to change themselves. Microcosmism thus became the foundation for optimism.

3. Nature as *machine*

To introduce a third world view, post Galilean, of the world as a giant machine, the example of water also helps. In contrast to Leonardo's explanation of water circulation, the 'machine' metaphor suggested the alembic, or alchemist's alternative. In their distillation flask (alembic) water is heated to boiling point and the steam so generated is then cooled to produce condensation in the head of the flask.[26] The earth is seen to operate in similar fashion: inside there is a central fire that heats the incoming water flowing downward through subterranean passages from the oceans. Water then rises as steam to the earth's surface, where it condenses; that is, in mountains and hills. The alembic model could explain clouds, rain, thunder, and lightning, even earthquakes. The geologist Hutton (familiar with James Watt, inventor of the steam engine) saw the world in mechanist terms — the earth as a perfectly constructed machine, bearing the marks of its Creator's power and wisdom.[27] Whatever in it is subject to decay must, through its own internal mechanisms, also be restored. Its mechanisms are, however, to be distinguished from those of its creation, which remain beyond speculation.

The most favoured metaphor which ushered in this new image was the clock. The use of water, and water symbols, in the 'clocking' of time, is perhaps one of the most famous examples of metaphor in science and technology. A recent commentator claims that Galileo and his generation inaugurated "a new attitude for man before nature: he ceased to regard her as a child watches his mother, modelling himself after her; he wishes to conquer her, to make himself 'lord and possessor'."[28] There is a certain Oedipal aspect at this interpretation of the sudden adoption of the 'machine' metaphor in various parts of Europe by scholars of widely different backgrounds. The violation of nature which ensued was accompanied by feelings of guilt and anxiety to which we are still heir.

Mechanism is traceable to early sources in Greek and Roman philosophy. Cicero eulogised the power of mechanist thought and *techne* already in the first century B. C.:

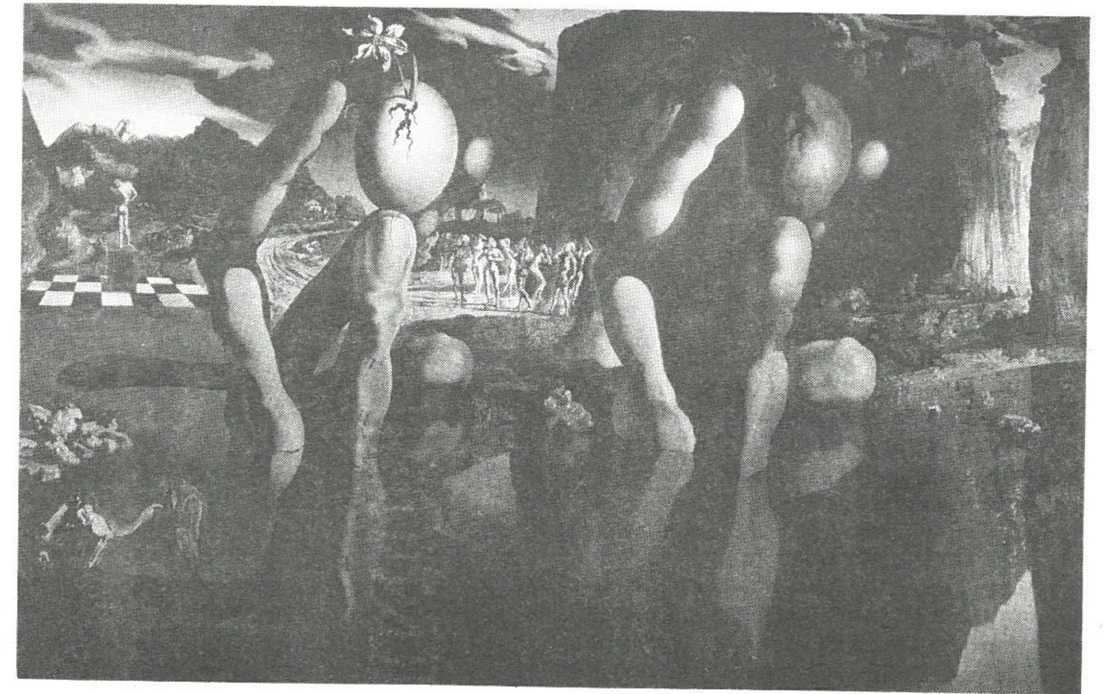
> "We enjoy the fruits of the plains and of the mountains, the rivers and the lakes are ours, we sow corn, we plant trees, we fertilise the soil by irrigation, we confine the rivers and straighten or divert their courses. In fine, by means of our hands we essay to create as it were a second world within the world of nature."[29]

Mechanism probably arose, like other metaphors, from the attempt to explain the unfamiliar in terms of the familiar. Instead of the human body, however, the analog was based on experiences with objects — carpentry, architecture, clocks, levers and pulleys, and later with steam engines and computers. Throughout the 17th century mechanism actually supported a teleological and a religious conception of the universe: there was still a maker, and objects were made for a purpose. However, an added nuance came through the Enlightenment faith in human ingenuity: the well-constructed object — for example, the clock in the Strasbourg Cathedral — did not need constant maintenance. In fact, the better the construction, the more it could be left to its own devices. If there was a God, then, His Omnipotence would be best shown by his absenting himself. God became a 'retired engineer".[30] The environment could thus become secularised. People believed they could tinker with and ultimately control nature; what had been put together could easily be taken apart. Attitudes of analysis and dissection joined those of curiosity about how mechanisms might be controlled. Nature became a reservoir of potentially exploitable resources and each major technological innovation — dams, pumps, irrigation, and so forth — brought with them a changed image of the environment.

Thus the idea of the 'creative' person became more established in this period and was linked with the technologist's aim of creating a 'second world' within nature. Enlightenment psychology had a certain resistance to the more mysterious aspects of creation, to the notion of bringing forth of something out of nothing.[31] Artists were required to work according to rules, analogous to the rules governing the working of a machine. This resistance to the notion of creative freedom was overcome in the modern period.

4. Nature as *arena* or as *theatre of events*

In marked contrast to the integrated 'whole pictures' offered by 'organism' and 'machine', a fourth view returns to the plurality of events and phenomena.[32] An 'arena' perspective views the world as stage for spontaneous and possibly unique events. Thus each flood, hurricane, earthquake or storm can be seen as a unique occurrence, each to be analysed and described in its own terms. This view may be more typical of the trans-Atlantic corner of the West — from the land where the



Salvador Dali, *Metamorphosis of Narcissus*, 1937.

Pilgrims sought to finally make the Reformation work and rid human consciousness of old dogmatisms and intellectual effetism.[33]

The emerging natural philosophy would be pragmatic instead: the truth of yesterday would no longer suffice for today, and would most probably be false tomorrow: the ultimate test of credibility was whether something would 'work'. To understand an event, then, meant to look at it contextually, rather than through the filters of *a priori* rational models.[34] From this contextual approach a radical transformation in conceptions of knowledge has come about. This transformation can be summed up as the movement from 'observation' to 'participation'. The researcher cannot claim a stance outside the reality studied, he or she

"If there can be a universal conception of dwelling on the earth relevant to all world civilisations, it must include this fluid, liberating element. Wholeness is a horizon which recedes as the journey through life unfolds."

participates in it, and reality is inevitably altered through the research process itself.

Creation in the modern age has to do with freedom; the idea of creativity as a human attribute has been fully established. The artist is no longer seen as merely an imitator, nor as a form of technologist working according to the rules, but a free creator, one who brings forth unique creations. A key requirement in modern art is *originality*. Yet in the sense that the creator is not outside reality but a participator, one whose creations actually influence reality, then creative freedom also implies responsibility. Throughout the world of art and the human sciences in these post-modern times, however, most inherited 'certainties' have crumbled and a pervasive sense of nihilism erodes creativity. In many ways people in the West find themselves in a mood of Narcissus on a pilgrimage to the pool of Hippocrene on Mount Helicon.[35] Dali's *Metamorphosis* may express the most appropriate challenge. Narcissus, critically reflecting on the situation, must choose one of two alternatives: falling in love with his own image or undergoing painful liberation from past uncertainties to welcome a new creation.

AN ENDURING CHALLENGE

"Whether or not it was written in the stars, a different age seems to be upon us; and Aquarius, the waterbearer in the ancient zodiac, symbolising flow and the quenching of an ancient thirst, is an appropriate symbol"

Marilyn Ferguson *The Aquarian Conspiracy*[36]

Water symbolism has yielded its richest harvest in the West through metaphor. Notions such as 'organism', 'mechanism', 'cycle' and 'flow' have helped provide a cognitive grasp of the whole or its internal dynamic. With water symbols, time and space have been mapped and measured, natural and social processes controlled. This primarily cognitive thrust stands in marked contrast to the Indian use of metaphor to generate a sense of participating in creation, along with other living beings, spiritually and emotionally. It also contrasts with the East Asian way of intuition and aesthetic appreciation of the whole, and the analogues between human sociality and cosmic reality. The Western way of exploiting water symbolism has laid emphasis on the visual over other senses: art and literature (to be seen or read) take precedence over sound and touch (to be heard and felt). Finally, the West has shown a peculiar attraction for symbols of how things work — from the balancing of moistures to the hydrological cycle — the West has fulfilled the Baconian formula 'knowledge is power', without heeding his other counsel, *Natura nisi parendo vincitur* (Nature can only be overcome by obeying it).

Still today few metaphors offer better invitations to think holistically than those which derive from water symbols. Western scholars, when asked about their moments of creative insight, spontaneously resort to water symbolism: "flow of imagination", "rush of insight", "stream of consciousness", "channelling of energy". For the natural scientist and engineer, water still exemplifies best the principle of continuity from oceanic to microcosmic levels. So, too, for the theologian, grace, so often described in water symbolism, is the principle of holiness, gratuitousness, healing and

re-creation throughout Buddhist, Hindu, and Judaeo-Christian traditions. And for geography the hydrological cycle is perhaps the one key metaphor which enables physical and human geographers to share a common concern wherever life exists on planet Earth. But can water symbolism help us make that creative leap — reach toward those higher levels of symbolic transformation — which I claimed at the outset we needed?

From this brief look at water symbolism and its cardinal role in world cosmologies one particular meaning stands out. Water symbolism beckons us all beyond our occupational niches, cleanses us of those encrustated routines and in fact suggests some alternative ways of perceiving ourselves and our world. Like Old Man River flowing past a rich diversity of separate and distinct human groups, so too the contemporary world sweeps past and our traditional 'boxes' of expertise seem in many ways like ox-bow lakes and *levées* of forgotten relevance. Water permeates the whole of life, inviting all to ongoing creation. If there can be a universal conception of dwelling on the earth relevant to all world civilisations, it must include this fluid, liberating element. Wholeness is a horizon which recedes as the journey through life unfolds. ≈

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•THE HEALING WATERS•

INTERVIEW

An interview with ROSALIND PECOVER

Rosalind Pecover is a priest of The Christian Community, a Church and Movement for Religious Renewal in Balmain, Sydney.

Transforming Art: Do you have a memory of any special experience in relation to water?

Rosalind Pecover: I think that my first conscious appreciation of the water was when I once read about soldiers returning from the second world war who were shell-shocked. Apparently the only thing that could help these men was to walk through water, and by walking through running water their shell-shocked souls were soothed and replenished and renewed. I think from the moment of my hearing that, I have striven to work with water and its relationships to other phenomena in the natural world — its relationship to ourselves.

TA: We are sitting here talking by the edge of the sea and I know this is a place where you often come. What is it about water which attracts you in particular?

RP: I think it's the play of light in the water — the movement, the mercurial power and the breath of life. Through the dancing light the human soul can penetrate into the depths of the water, and yet remain outside of it, finding, so to speak, the life within the life. And in the ebb and flow of the ocean one also experiences this power of life. It's as if the air is revivified, enlivened, by the action of the water on the shore-line and that's why it's so healing to walk along the beach, just where the water is turning over on the shore. So again you've got a meeting of elements — here the air and the water. And like the play of light on the water, this revivification of air and waves can work within the human being as healing balm. The human soul can take it up and begin to breathe and thereby heal the body.

TA: Have those kinds of experiences played any part in your becoming a priest?

RP: The interesting thing is that I was actually on a ship in the Great Australian Bight when I said 'yes' to the possibility of training for the priesthood. So I was surrounded by water at that time and this, I think, had a great influence on my decision. I had been overseas for four years, and had left Australia to study, not in a formal way, but in my own way, the architecture and paintings of the great masters, whether they be Buddhist, Muslim, or Christian. Prior to that I had been teaching art history in a Western suburbs high school and had realised how incredibly dry it all

Calling the sons of Zebedeus, bronze, Cathedral at Hildesheim.

was and I wanted to find a way of bringing a living approach to art back to Australian school children. So the moment of that decision was the culmination of having been away for four years, having gathered the fruits of art to myself. Then I was able to answer, out of the water of life so to speak, the call of this dry country.

TA: Could you say a little more about how that gathering of the fruits of art contributed to your decision?

RP: When I was in Europe I didn't know that I was going to become a priest; I had gone in search of the truth as brought to life by the artist. But when I came back, filled with not only human art but the art of nature, the question which came to the fore for me was how life can also be brought into the world through religion. What I had found through my studies of art was the living power of beauty, and my initiation to the mysteries of natural science began to give birth in me to new powers of thinking and knowing. To become an artist you've got to be fluid; you have to be fluid in your imagination, in your inspiritive life and in your intuition. So much art is intuitive; it grasps thoughts out of the future and brings them into the world, puts them down on paper or forms them as painting or sculpture. We could say that sculpture holds within the density of the material the force of water in movement. Sculpture is fluid matter expressing the inner perceptions and ideas of the artist's inspiration. It is the interplay between the imagination of an artist and the idea that has been 'seen' which is brought to life as it moves through the chisel. Many forms of art have this quality of movement, this intuitive quality, and water has to do with movement and the mercurial power of thinking. Through our training as priests we should strive to be able to achieve this fluid quality of the artist — in thinking and the gathering of knowledge, in awakening the forces of the heart and feeling — so as to be able to bring life into the work at hand.

TA: Creation stories from many religions contain images of water. The image of 'the spirit of God hovering over the waters' in Genesis is just one of these. But what is it which connects water specifically with the Christian religion?

RP: Well, as I have been saying, water has to do

with life, and when one is surrounded by water there is the possibility of contacting oneself, or as it is said in certain traditions, one's own angel. Then the future of an individual mirrors back to them. That is something which is seen in many of the gospels; for example, when Christ taught from a boat on the Sea of Galilee he spoke out of the sphere of life to the people on the land. In John 21 it tells of when the disciples were fishing and Christ asked them if they had caught anything. They said no and he then told them to cast their nets on the other side. He was saying, in other words, 'put your thoughts into the life force, and draw up new imaginations, images of truth and knowledge.' There is also the healing of the man who had been paralysed for thirty years or more, which took place by the pool of Bethesda. Christ came along and asked him if he wished to be well, and the man said that he couldn't get down to the water in time because others were always going in front of him. The angel came and moved the waters — that's when the healings took place. In that ancient tradition of moving the waters, water has to do with healing, not only with life. So, training for the priesthood is studying the gospel as it was given and understanding how the future comes towards one. It becomes clear that this has to do, in so many ways, with water — the water of life.

TA: Yes, perhaps we could explore that idea of fluidity further. Is there any particular way of thinking about water which awakens an understanding of Christ?

RP: That's an interesting question. It relates to a new way of thinking about the meaning of the Ascension, something quite wonderful although not generally understood. The gospel, as originally given, speaks of Christ appearing in the clouds or moving into the clouds, taking hold, as we may understand it now, of the whole life-body or etheric body of the Earth. The life is where the water is, where the condensation is. We may say that Christ is everywhere, is the Lord of the Earth, is in everything. For modern human beings, the reappearing, the second coming, has to do with this phenomenon of air, which in the Greek is the same word as spirit or *pneuma*, and water. Christ said to Nicodemus; 'unless you are born of water and the spirit, you cannot enter the kingdom of God', and this has to do with the whole etheric sphere of our perceptions.

TA: Do you mean the actual earthly phenomena we have around us?

RP: Well, He needs that medium, in part, to appear. At the moment of the Transfiguration on Mt Tarbor, in the presence of Peter, James and John, Christ was filled with light, and then the clouds overshadowed them after the appearance of Moses and Elijah. Why the clouds? The clouds have to do with the rising and the dispersion of life forces. What took place for the Christ was a pre-moment, one could say, of the resurrection, when the disciples were given an insight into life. We have a concept of the Father who is in all things — the rocks, the waterlilies, in colour, in our own bodies. That's the Father God in us. Then there's the creative power that is the Christ which is also both outside and within us. It's in the fluid element of the life realm around us, but also in the fluid elements of our own imagination, our own insights. This is where people meet Him — in the ebb and flow of the outer world and the inner world. Christ is 'King of the elements'.

TA: Are you saying that the study of the outer phenomena can help the inner flow of the imagination or that a fluid inner life is necessary to understand the life in things?

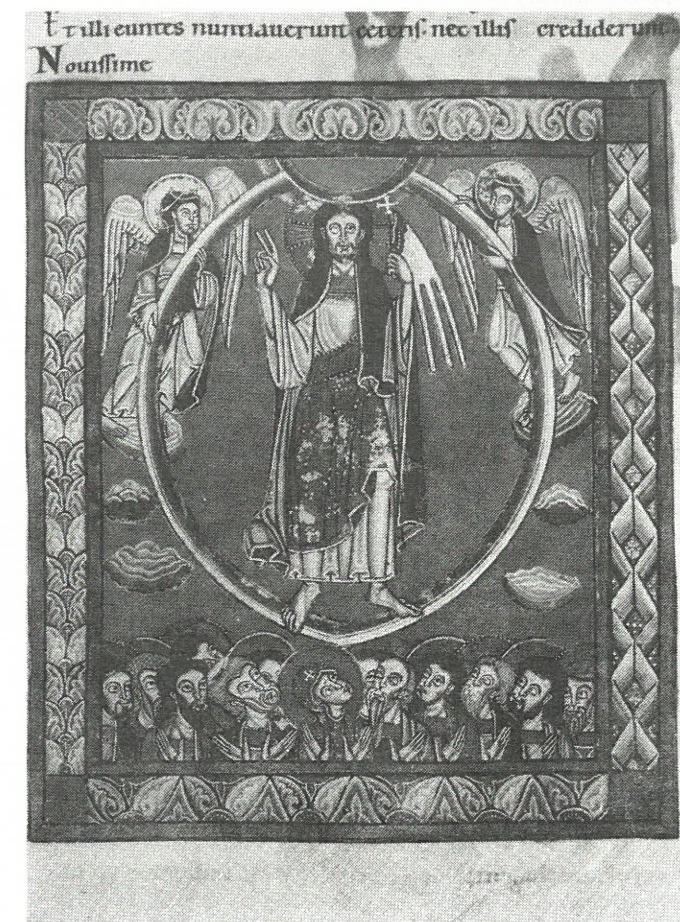
RP: Both. One of the exciting things about the approach developed from the science of Goethe, which we studied at the Seminary, is that one begins to recognise how one's soul moves out to the objects, moves out into the water, moves out into the colour dancing in the water. Maybe one observes the water dancing on top of the waves for five or ten minutes. If one can let go one becomes united with that dance that's taking place. We 'listen in' to the light-filled water which means learning to bring all faculties alive — the hearing, the seeing, the touch. One enters a living participation with phenomena. To do this is Christian. We human beings are not separate from things, but we have our own egos. Thus we can direct our participation with an element such as water; we become co-creators with the world, with the Father and with the Christ, every time we consciously sit down and contemplate water, every time we move into it and come back with knowledge. We have not only learned something, we have given something of our love to the Earth.

TA: That reminds me of ideas connected with Buddhism. I seem to remember forms of Zen artistic meditation which describe the process of going out and 'becoming one' with things in order to paint or draw them. Are you saying anything different from this?

RP: The thing is that the essence of Christianity has truths of Buddhism within it. Our humanity has evolved down the aeons and that which has been brought alive by Buddha is real; it didn't come to an end because Christ was incarnated but continues within the creative evolutionary process. What is different is that instead of losing oneself in the phenomena one goes to meet it and can come back with knowledge. Anything that we human beings do is concerned with that which flows between us and the world and with one another, with the 'in between' of things. There is the creativity.

TA: But that can give rise to a confusion. The idea of mysticism is often associated with the process of dissolving the sense of the separate ego. Yet creativity is regarded as the attribute of a unique individual.

RP: You don't lose yourself, you actually find yourself. You find your relationship with water and you find the life in yourself. In studying something you can't lose yourself in it because you would then actually lose the threads of thinking. The thing is to try to think the steps of your observation through and each time to come back to yourself so that the knowledge gained is *your* knowledge. You are not losing yourself in the feeling but on the other hand you can't move into something *without* the feeling. It's a will activity to call yourself back, an act of the ego. You want to look, for instance, at the flow of the water in a particular direction, at the ripples that it might leave in the sand. You may want to understand how it works, how it comes about. One can move with the particular flow of the water backwards and forwards to actually find the power in the water that is causing the little ridges in the sand.



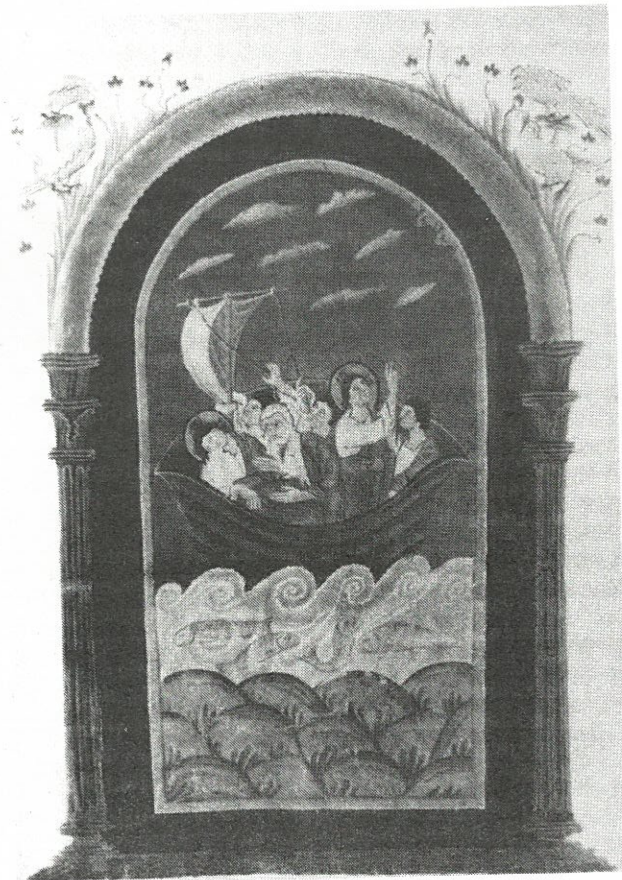
Christ's Ascension, mid 12th century, Stuttgart.

What is needed is to observe carefully and the more one works at observation the more one begins to know that substance. I don't mean knowing it just in terms of its chemical or mechanical processes; I mean its inner formative or creative forces. It is coming to know water as poetry, as art, as that holy part of our earthly life.

I think of this as the process of breathing in and out of things. It gives the possibility of the human being learning to breathe again; that's my greatest interest. As modern human beings we are so tight in our chests — we can't breathe. This has become a great struggle for so many people in our country; next to New Zealand we have the greatest problem with asthma in the world. Our souls are not breathing. Yet if we become part of the creating that's taking place within the natural world and do not just remain passive onlookers, then we develop this capacity to allow the soul to expand and to come back to itself. That's what I try to do when I bring people together — to help them to breathe, so that they can go back to their life's work, having gained some sort of strength by not losing themselves in the phenomena but finding themselves.

TA: This breathing process; could you say more about that? You mean, literally, don't you, that a part of you goes out into the phenomena?

RP: Yes, one is actually in the phenomenon, and the task is to become conscious of living in that split second within the phenomenon, within the observation, within the pure experience, and then removing oneself. We learn to watch ourselves, to watch the journey of our observation. In order to come to knowledge of what we are looking at, we have to follow our own journey, because the soul, in a certain sense, leaves one behind to go out and touch the phenomenon. To be able to penetrate such a moment is actually to live in a moment of art, an artistic moment, in which we are participating rather than just observing. What I mean by the soul is the part of the human being that reacts, that carries the emotions which can sometimes throw us in all directions, that moves between thinking and doing. It's the living part of us which is personality, temperament, the bearer of the joys and sorrows of life, whereas the Spirit is what is eternal in us. The soul expresses the way we live in our bodies and is also that part of us which enables us to move with our feelings out into the world and to find a living relationship with God as He is present in other beings.



Storm on the Sea, c.990, Cathedral at Aachen.

Actually we always participate in what we are observing but we don't realise it. That's the tragedy of computer games. The person playing those games is right there in what they're doing but they're not there in their consciousness — observing themselves doing the observing. There's nothing about those games which helps a person find *themselves*. The games are 'clever' but they are tools for spiritual stupidity.

TA: You were talking before about the way humans are involved in a co-creating process with God. How does your work relate to the very practical issues facing water today, for example the questions of water pollution? Your descriptions conjure up an image of a very restful process of observation but how can that relate to the actual concerns which many people feel today in connection with our waters?

RP: If that's what we want to do — to help to heal the waters — we have to take a practical step in that direction. To believe that we, as human beings, are just the puppets of a God, is to deny the possibility of movement forward in a spiritual evolution. If evolution is a reality then we're part of it; so that everything that we do, everything that we think, everything that we feel, is part of that evolving. That includes every step we take to better ourselves, to gain knowledge, to become artists in everything that we do. If a person is working with a pneumatic drill on the streets, he needs to feel that what he is doing is working towards the evolving of our existence, that he's not just a navvy on the end of a drill. The fact is that he has offered his own physical forces, indeed his life's strength, to enable us to walk along that street. This is creativity. And it is religion. Otherwise religion is just a set of rules and laws, rememberings of healings, the remembrance for the Christ that died and rose from the dead. But what does that mean if we are not co-participants in life on the Earth and everything that that entails. So everything we do as far as religion is concerned is related to everything else — there is nothing religion isn't related to. The particles of sand on the beach, the movement of the waves, the song of a child, our consciousness of observing those things and of finding God in the midst of life; all of that is part of the releasing of the powers of evolution. Otherwise we're just passive bystanders of our own existence instead of being spiritual beings with a task. We either regard ourselves as human beings and spiritual beings, or as puppets. If we love life, if we love the Earth, then simply we would do everything in our power to keep it healthy and clean.

TA: So that, I take it, is why you regard creativity as such an important part of your work as a priest; not to perpetuate the authority of tradition but to help release the potentiality of individuals.

RP: Yes, it has to do with the future coming towards us. The Christ comes towards us out of the future, not out of the past. Our work is with the Sacramental life, and the power of 'becoming' from death to birth. We strive to work out of the creating Love of the Christ for all forms of life.

TA: Nevertheless, a highly individualised creator, a modern individual, a person who has a strong sense of themself and their unique creative powers, who knows clearly what they want to do in life, may still think that the Christ is coming towards them to tell them what to do!

RP: When the Christ came towards the disciples, when he comes towards us, what does he say? — 'The peace be with you'. It's the inner peace that we must have, through the stilling of the soul, in order to find ourselves. We can't find ourselves in chaos. But in the peace our own creativity can go to the heavens and back. There's nothing that stops our creativity except ourselves.

TA: Let's turn now to the part of water in the rituals in the Christian church. Water, of course, is used in Baptism.

RP: Water is the sign of Baptism, no matter which denomination we are talking about. Whether it be the Baptism of the child or the baptism of an adult, it's always with water. Christ is the water of life. It has to do with the forces of life; without water there

can be no life. In every element of our existence water is necessary. And so one takes the archetypal substance and through the true Ritual the priest or minister baptises in the name of the Father, and of the Son and of the Holy Spirit.

TA: It has to do with being reborn into a new life, doesn't it?

RP: It has to do with the meeting of the self. And one could say, — what about the Baptism of the small child? How does that small child who has just come out of the spiritual world meet itself? The power of the ritual is in the naming; the name and the water belong together. At the moment of Baptism the child is named in the name of the Holy Trinity. So the eternal part of the person is addressed in a Baptism, that which goes beyond kith and kin, beyond blood ties, beyond the aspect of that individual the world sees as a visible form. That eternal sacred essence of the human being is addressed, and the water, because it represents the permeating power of the Spirit, is called down through prayer. And by also calling the individual's name they 'hear into' their own individuality. Now you could say, — a small child is not conscious of that. But if we are speaking to the eternal person, that person knows; you only have to observe a baby during Baptism. So the water has this creative power, this penetrating, healing, renewing, propagating power, and that is why water is the substance of life.

We also use water in the communion service in our church, The Act of Consecration of Man, where the water is mixed with grape juice. The only other time it is used is in the burial service, which isn't a sacrament. Here we use water and salt which together have the power to help release through prayer the last elements of life in the physical body after they have died. In Baptism, the Sacrament at the beginning of life, water is used; at the end of life, in the Anointing, we use olive oil which has warmth and power, not to help incarnate as the water does, but to help the person to excarnate, to move out into the world of Spirit from which we have all come. The body is returned to the dust of the Earth, the soul and Spirit go on to realms where the work of transformation must continue for that individual whom we welcomed into life on Earth at their birth.≈

Marriage Feast at Cana, Egbert Codex, c.980.

•SQUINTING THROUGH MIRAGES•

LITERATURE

by JEAN KENT

Jean Kent's published books of poetry are *Verandahs* (Hale and Iremonger,1991) and *Practising Breathing* (Hale and Iremonger,1992). Her poems and stories have also been widely published in literary magazines in Australia and America. She grew up in rural Queensland.

Silent as sleep, the creek slides. Further on the water is rapid and black. It trickles and chatters and juggles itself between rocks and stiff boulders; it bends and unwinds, taking on whatever stands unmoving in its way. But here it is sinuous and slow, seductive as a memory-pool.

Above a landscape of ochre pebbles, this water hangs like a summer sky. A whiff of froth drifts there, floating slow and mysterious as cloud above its own shadow on the rocks below. Here even a dragon fly, a flickery creature preceded by a larger version of itself, stops to take its own pulse. Its long legs cease skating. Its heatwave wings settle. It lies flat as a pressed petal on that pool of calm and forgets to fuss itself on, on in search of food.

As still as that, my grandfather would stand, the divining rod in his hand, waiting for water lost beneath the earth to send its current to him, until he quivered like a musical string gently plucked.

'Forty feet down,' my grandfather might say. And sure enough, at forty feet the drill met the waiting gush. Into people's throats then rushed bubbles of relief more intoxicating than champagne.

My grandfather lived on the Darling Downs, where people are always longing for water. Under the blank blue skies there, they watch the horizon and pray. Their foreheads furrow like the dry dirt roads which lead them to long troughs and sun and shadow rippled tanks which they knock with their knuckles, hoping to hear more than emptiness ring. The patient pools of their eyes sink deeper into their skulls as they squint up to heaven or through mirages, those false promises which the landscape obligingly provides — shimmering the world wetter than they could ever want it.

In that place, I see the burnt skin of the earth lift off. At my feet, crazy cracks widen, the world's jigsaw pieces separate under an eerily smooth, milk chocolate glaze. Even at six years of age, I would read the weather, will the windmills to whirl. Being Granpa, I walk his thirsty black soil with a forked stick in my hand, waiting for it to twitch and bring me the divine gift. Being Gran, I run baths no deeper than a finger — scoop every drop out later with a bucket to keep the roses and the larkspurs alive.

Growing up in the wheatlands, I learn there is

no life without water. The trees send their roots down deep for it. The wheat and the sunflowers look forever to the sky. *Rain rain* — the word hides in me like a heartbeat. Nothing grows in my family without it.

As the years and the distances stretch between us, still they talk about it, measure it, lap it up as greedily as the garden and the crops . . . When the first drops fell — huge mercury beads on the windows, or with a hiss and a misty hush across the stubble — how we children exulted. So much giddy delight then — bogged roads, no school, even the adults flickering like lightning with new energy. Given water, how the world gleamed and changed. Suddenly there were new emergencies: crops to be harvested *immediately*, seed to be feverishly sieved into the still damp, steaming soil. Suddenly there was laughter and hope and gratitude. Above the soaking earth, at last the long-verandahed house settled like a wide-decked ship, safe again on its waves.

*

To my mother the sea was a magic place, rarely seen. 'Let me dip my toe in it,' she said, with bubbles in her voice. Then, still goose-pimpled from squeaky sand, while the water wrapped her ankles and laid down its lace-edged wings, she shivered, excited as a child. Looked briefly healed.

So much water frightened me. It was like the flood which swept snakes and cattle past our front steps. It was huge and wild, taking life away as well as buoying it, rocking it deep within a world I never longed to enter. I walked gingerly over jetties, squashed my face like squid-flesh against the glass-bottomed boat — stood respectfully before all lakes and oceans, letting them be home to coral, mullet, box jelly fish, seagrass and shells. Over the years I watched water gather thongs, plastic bags, syringes, even one or two sad souls who hoped it would receive them forever, folding its moonlit softness over them as it pushed out their last, dark breaths.

Leaving the place of childhood, I forgot family myths. Without thinking, I began to live with water almost always just over my shoulder. 'Let me dip my day in it,' might have been my motto as I moved to city houses with the sea distantly blue through their windows or the Harbour just a twilight walk away. I drowsed under long showers and carelessly turned on the taps and drank. Went on picnics like this one, to places in the bush where creeks gather leaves into their shallow brilliance and time stops beside them.

Silent as sleep, here the water slides . . .

The dragon fly I was watching has been tugged into rapids. My friends, the art students sitting on rocks nearby, are water-skating after it. They are gazing hard, rinsing themselves in water and then hoping to let it drip, with all the shock of their experience of it, onto white paper.

On one page the water is stiff, gelatinous, thickly ribbed. It lies along the shape of a rock as if it has been poured into a fluted mould and left somewhere dark and cool to set. Turned onto a plate, it could be sliced into jubilant, luminous, only slightly wobbling squares of orange and turquoise and pomegranate-pink, mouth-watering lozenges of a delicacy so rare, so pure, so . . .

But the water never sets. It moves muscled and crude onto another page. Gurgling, it slides off the jelly's plate and froths. Bubbles break out of it, frittery and excitable, dancing, quivering, defying the air to make them snap. Round in a circle they tremble, exuberant for a moment in their group before the current sucks them back.

Watercolour-washes like tie-dyed silk. Sketches of civil war in a country of bubbles. Whirlpools, waves, ripples as soft as approaching sleep . . .

I watch the water and see it defy all our efforts to capture it. On it rushes, changing its face, changing its character, changing its tune. It speaks in too many tongues and throws back too many visions of sun and rocks and stranded leaves and faces peering into it for peace or illumination.

And yet, sitting beside it, I have grown so quiet, so still. The animals take no notice of me. A lizard with feet of copperwire creeps onto my rock. Its bronze head is beside me, one eye holding mine. Am I no longer human?

Spots of black on the still water rouse me. I see ripples of reptile skin and my nerve ends twitch. When I walk away from the water, the ferns, the boulders, the stillness and the eruption of hundreds of lives beneath one colourless, untrappable skin, I walk as if on icecubes. I start to run, gasping like someone half-drowning.

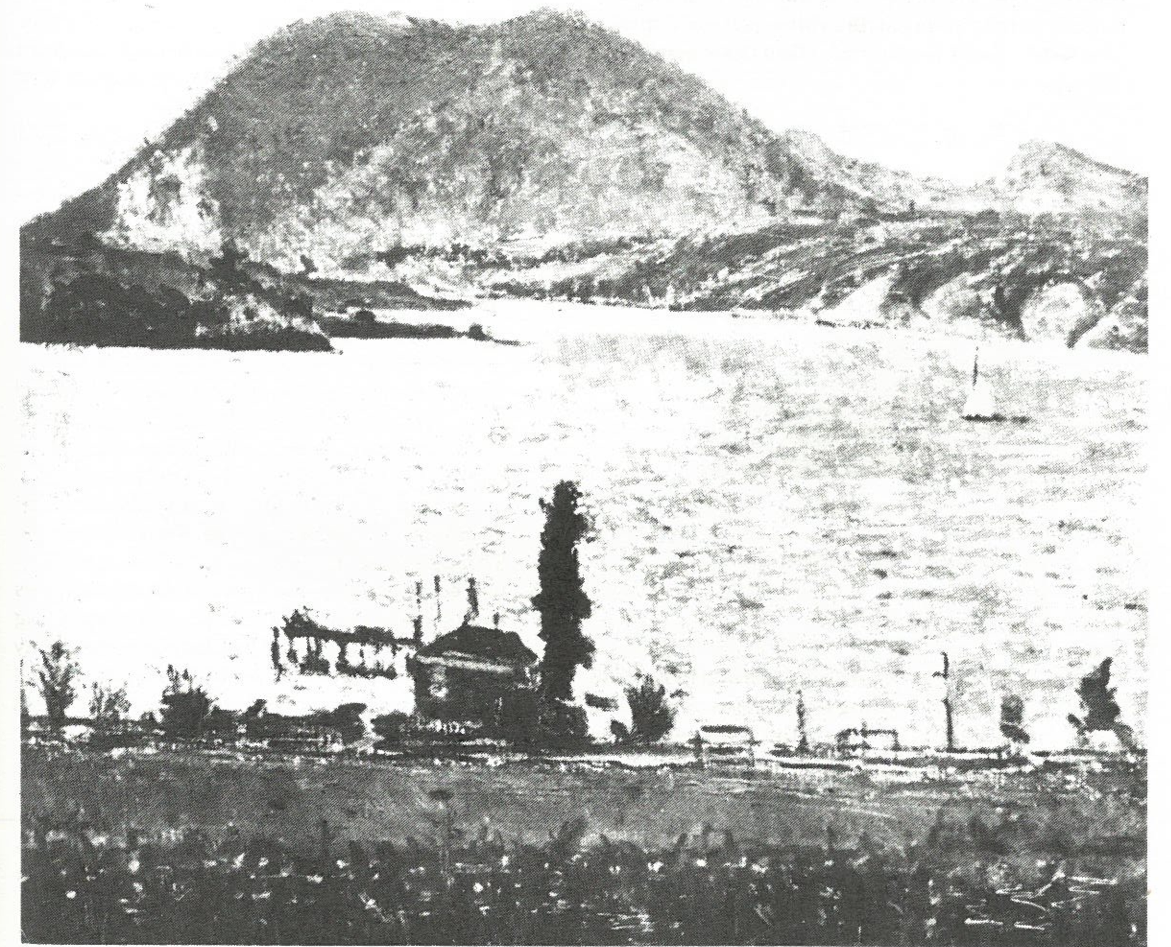
Hot, dry earth soothes me. I slow down and check myself for ticks, leeches, little skinks who have mistaken me for a rock. My socks have fallen down. I roll them up, comforted by the bare cotton

in my hands, their damp warmth free of danger.

With their sketch pads and their visions of creekwater drying all over them, the others have gone on ahead. Rainforest beckons, its juicy leaves splashing sun all over the path. Kookaburras gargle, then shoot off volleys, shattering the green stillness. Wind, high in the tree-roof, roars and roars, relentless as any ocean.

Somewhere far away, a quarry is blasting as again I find the creek across my path. I think of the blue metal gouged from the earth just beyond my grandparents' boundaries as I sit down again on a rock by water. Soon I will drive back in that direction too and as I leave the place where I now live, my rear vision mirror will fill with a blue lake. The view will be a long, cool drink I take with me, but like my grandfather's gift, it will not be enough.

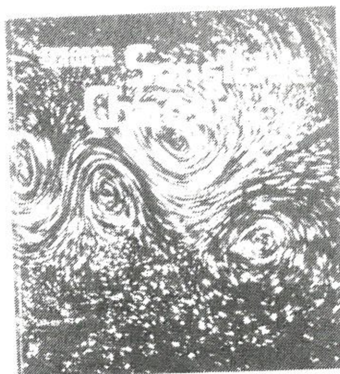
In the small creek by my feet, islands of leaves are marooned beside forests of moss, fern and lichen. Lines within the water streak away, as sinuous as thoughts not yet spilled in the mind. Squinting into them, on this rock I sit, seeing small worlds wetly guaranteed life, seeing through mirages the food and fodder trucks lumbering over bitumen to the places of my childhood, those places where lives are shrivelling in drought — places where people still pray for water.≈



Edith Holmes *Mt Direction*, oil on canvas, 1949.

REVIEWS

Note: The books presented in this section are not being reviewed in the usual sense; that is, in the form of a critical assessment. They are being 're-viewed' in the more literal sense of being examined again, being reconsidered. Hence they are not necessarily new titles. The purpose here is to bring to attention books which are especially relevant to the theme of this issue, and are, in the opinion of the reviewers, worthy of being introduced to wider circles of readership. This is also the reason why these reviews are primarily in the form of summaries. The intention is simply to indicate the book's content and possible value (critical appraisal is left to those readers who find their way to the actual books).



SENSITIVE CHAOS
The Creation of Flowing Forms in Water and Air
Theodor Schwenk
Rudolf Steiner Press, London, 1965.

This book received its fourth impression in English in 1990 and was, according to the notes on the back cover, re-released 'to meet the ever widening interest and demand'. Certainly one does not get an impression of the book's being out of date or old-fashioned in its ideas. On the contrary, the ideas it contains are so original, rich and visionary that one feels the time when this book can be of most use is yet to come. It is a penetrating exploration of the nature of water, encompassing both art and science in a phenomenological approach deriving from Goethe. As such it makes an important contribution to this issue of *Transforming Art* on the theme of water.

This is not an easy book to understand immediately. The first impression can be that it is merely a scientific text in the conventional sense, a technical paper on the subject of flowing substances, with associated facts about life-forms within the sea and the atmosphere. This idea, if maintained, can only serve to obscure the real intent and import of the book. It is true that, on one level, it is a factual account by a scientific researcher of phenomena connected with water. However, every idea contained therein has a great deal more depth than the 'merely factual'. As one goes further into the book it is as if all the facts brought forward undergo a transformation or metamorphosis and become spiritual insights.

What is 'spiritual' about this book (this word constantly appears; there is, for example, a chapter entitled 'On the Spiritual Nature of the Liquid Element') is not something apart or opposed to the scientific; the one grows out of the other. Schwenk is pointing to a way a phenomenon such as a wave, a vortex, the brain or intestines, may come to reveal themselves as 'spiritual' entities. He writes:

> "The author wishes to suggest a way on beyond pure phenomenology, towards an ability to 'read'. The path will be difficult and it will be necessary for the reader to penetrate observantly and patiently into many details until gradually a comprehensive view opens up. Through watching water and air with unprejudiced eyes, our way of thinking becomes changed and more suited to the understanding of what is alive. This transformation of our way of thinking is, in the opinion of the author, a decisive step that must be taken in the present day."

It becomes apparent in the course of the book that the capacity to 'read' phenomena in the way Schwenk describes depends as much on the development of an artistic intuitive power as it does on clear and precise scientific thinking. It is, however, not until right at the end of the book that the particular relevance of the book for the creative artist of today comes to light.

Schwenk points out that the spiritual nature of water was once understood by people in an instinctive way. He quotes the poet Novalis, who grasped something of this traditional wisdom:

> "Natural philosophy in the time of Goethe and the Romantic movement still gave water its place as the image of all liquids and the bearer of the living formative processes. People experienced the fluid element to be the universal element, not yet solidified but remaining open to outside influences, the unformed, indeterminate element, ready to receive definite form; they knew it as the 'sensitive chaos' (Novalis, *Fragmente*)".

For Schwenk this is not merely a nostalgic remembrance, because he believes that humanity's lost sense of the spiritual nature of water is connected with the potential loss of its very *physical* substance, evidenced by the world-wide drying up of springs. But while water was once understood in a mythic, instinctive way, through the apprehension of the divinities of water who were approached with great reverence, Schwenk is attempting to bring alive an understanding of water's spiritual aspect through a modern scientific approach.

To summarise the contents of this book in any kind of satisfactory way is not easy and there is a danger of a 'merely factual' quality coming to the fore. The archetypal aspects of water which form the foundation of Schwenk's phenomenological study are the circulating system and spiralling surface, the wave and the vortex. These phenomena occur in water and air, but they also occur in living organisms; for example, many unicellular water animals have incorporated the spiralling movement of water in their forms and they propel themselves with screw-like movements. Spiralling surfaces can also be found in the structure of human bones and muscles. Wave-forms can be found in the movements of the fins of a fish. There are innumerable instances of the appearance of the vortex within the organic world; for example, the shapes of shells, the horns of antelopes, the cochlea and semicircular canals of the ear, the fibres in the auditory nerve. The connections between the morphology of organisms and water phenomena are not arbitrary; according to the author, the organs of living things represent a metamorphosis of these phenomena. The creative forces, the archetypal ideas of nature, come most clearly to expression in water, and every organism and each of its organs must pass through a liquid state in the course of its development. All living forms, no matter how complex, can be seen to have been differentiated from these flowing forms.

Through his observations of the relationship between water phenomena and organisms Schwenk is led to ask whether water is itself an organism. He discusses in what sense such a notion is valid. Water stands in a very special kind of relationship to the living world; while it is obviously no *particular type* of organism, it reveals itself as an unspecialised organism of nature through which the forces work which bring about the creation of specialised organic forms. Out of the discussion he finds three characteristic features of water which reappear in all organisms, each specialisation emphasising one or other of those characteristics. First is the 'metabolic activity' of water which relates to its capacity to dissolve substances and mediate chemical and biochemical relationships. Water is constantly carrying out such activity throughout the 'Earth body'. The second characteristic, the rhythmical activity of water, is most clearly seen in the archetypal phenomenon of the wave. In nature it also shows itself in the rise and fall of saps in plants and in the pulsation of the blood in animals. Rhythm is the feature most commonly associated with life. The third characteristic is water's sensitivity and in the vortex a highly delicate surface is created. Such surfaces, according to Schwenk, are like undifferentiated sense organs. Water's capacity for instant reaction can be observed when a gentle breeze over a pond covers its surface with tiny waves. A stream flowing over rocks creates countless inner surfaces and vortices, which are in fact extraordinarily delicate membranes. The Earth's oceans as a whole are literally a vast sense organ open to the influences of the cosmos, the most apparent of these being the influence of the moon on the tides.

Schwenk goes on to describe how each of these three features appear, to different extents and in different proportions, in the three component 'systems' of the human organism. In the ear, which is part of the sense system, the 'sensitive' characteristic of water is accentuated; the vortical form of water becomes in the cochlear a highly delicate organ of hearing. The other two characteristics are present to a lesser extent. The rhythmic process is evidenced in the way sound is transmitted as waves through the inner ear. The metabolic character of water appears in what Schwenk calls 'a metabolism of sound', whereby sounds which are taken in are broken down and then built up again

according to the musical number ratios inherent in them.

In the intestine, which is part of the metabolic system of the human organism, the metabolic characteristic of water comes to the fore. Here the capacity of water to break down, dissolve and transport substances becomes metamorphosed into complex organic processes. To a lesser extent the sensitive and rhythmic characteristics appear and contribute to intestinal function; substances ingested become liquid in the stomach and are then guided by rhythmic contractions into the intestines. The substances pass through the loops and spirals of the intestinal tract, just as water in a river spirals and meanders in its bed.

In the heart, an aspect of the human circulation system, resting as it does midway between the ear and the intenstines, the third characteristic of water comes to the fore — the rhythmic function. According to Schwenk it is as if the whole function and form of the heart is a reflection of the streaming, rhythmic activities of water, which are taken up and 'clothed' in the solid form of the organ. Again, the other two characteristics of water are present, but to a lesser extent; the fibres of the heart are vortical in form, and Schwenk shows how the 'sensitive' aspect of water appears in the particular nature of the heart's nervous system. He writes: '[The heart] is permeated through and through with a delicate capacity of perception through which it takes account of the messages brought to it from the organism by the blood". Its metabolic activity is related to the blood's capacity, as a liquid, to take in and materialise archetypal images of organic form.

This is how Schwenk goes about 'reading' natural phenomena to produce a comprehensive picture of organic formation. He speaks of a supersensible world of forces — etheric formative forces — which work through the medium of water in the creation of living forms. It is human thinking which is able to understand these forces and the 'laws' which pertain to them, and it can do so because the cognitive capacity is itself a specialisation of those very forces. Not only is the physical human brain, resting in a watery medium and characterised in its form by flowing, repeating and meandering lines, but thinking itself is an expression of fluidity:

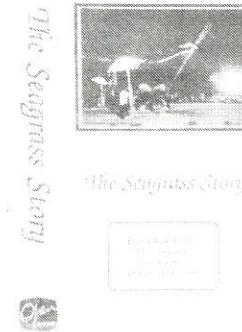
> "The activity of thinking is essentially an expression of flowing movement. Only when thinking dwells on a particular content, a particular form, does it order itself accordingly and create an idea. Every idea — like every organic form — arises in a process of flow, until the movement congeals into a form".

The last third of the book Schwenk devotes to the phenomena of air, which have much in common with the streaming forms of water. Air, too, is a 'sensitive chaos'; as does water, it forms extraordinarily sensitive vortical surfaces through its movements. Schwenk points to the innumerable vortices formed by the fluttering wings of insects or birds or when air passes over and around landforms. The whole atmosphere is pictured by Schwenk as a great organism, in which smaller organs, such as vortical formations of low and high pressure systems, are embedded. Whatever cosmic influences reach the Earth must pass through the atmosphere, which then passes them to the water-body of the Earth and thence to living forms. The way the influences from the cosmos play upon the sensitive membrane of the atmospheric fronts is repeated in miniature at the membrane of the inner ear; it is here we perceive those movements as sound. As with creatures of the land which are differentiated out of the characteristic movements and functions of water, creatures of the air are formed out of the characteristic forms and functions of air. Schwenk gives examples of airborne seeds. Also the forms of movement of birds' wings are 'condensed' out of the streaming movements of air.

Schwenk highlights a certain feature of air which distinguishes it from water. Unlike water, which tends to repeat the same flowing patterns over and over again (for example, the ripples as it flows around a rock in a stream) air is able to be modified in a new way at any moment. It is enormously sensitive and capable of being moulded by the most subtle formative forces. Thus it is that each animal utters a cry, and through sound expresses its own soul nature. The human larynx, through its immense elasticity, is not limited to any particular cry but is able to create an infinite range of sound forms. Indeed, as Schwenk shows, the human larynx is able to create in sound forms (or 'sound organisms') the very archetypes which give rise to all organic forms, including his own. Schwenk writes: "The true name of a thing is pronounced, when the form-creating, archetypal gestures of the consonants really do create the thing as a moving form". Man, in this sense, has the whole 'alphabet' of nature at his disposal; thus Schwenk says: "The spoken word is more than the intellectual naming of a thing, more than a 'nomen'; it is form-creating, spiritual reality". This is a universal alphabet, for it originates neither within human culture, nor upon the planet Earth, but within the cosmos as a whole and expresses the formative movements or 'laws' of the cosmos. In ancient times it was spoken of as 'the music of the spheres', and it was perceived how these could sound forth through the human larynx. Schwenk explains how such notions led Rudolf Steiner to develop the new art of eurythmy, where the archetypal movements of the larynx are carried into the expressive movements of the whole body.

Schwenk ends his book with a brief exploration of the occurrence of flow-forms in art. He shows how sculptured forms and other kinds of design from primitive cultures in different parts of the world show an instinctive apprehension of the archetypal movements of water and air. We arrive, thus, at a characterisation of art out of the understanding of creative movement in nature. These 'laws' which came to expression in their art worked their way into the whole social structure of these people. It is this understanding which — Schwenk points out — has withdrawn from the consciousness of humanity. He sees in the disjointed quality of modern art both the absence of the understanding of these 'laws' of flowing form, and the struggle to regain it. *Sensitive Chaos* is a presentation of a way in which such a new form of understanding can come about through scientific consciousness when infused with an artistic spirit. Thus the relevance of this book for the creative artist of today really only emerges right at the end. This book has probably rarely, if ever, been reviewed in an art magazine, but it is certainly appropriate to do so.

Nigel Hoffmann



THE SEAGRASS STORY
Open Channel Productions 1989,
Ian Cuming in association with Westernport Peninsula Protection Council.
Available from Video Education Australia,
P.O. Box 311, Castlemaine, VIC., 3450.

Only twenty or so years ago there were huge tracts of Australian coastline and numerous bays and inlets which were relatively undisturbed, encroached on only by rather sleepy fishing towns which however, did come to life a bit more during school holiday periods. It is precisely these sorts of areas which in recent years have become the focus of interest for developers of all kinds; all of a sudden their commercial potential has been realised. Simultaneously other aspects of these places have come into focus. Seagrass and mangroves, for example, which not so long ago were of no special interest except for naturalists and fishermen, have suddenly become the centres of interest and concern for people in general as their ecological significance is appreciated as well as their susceptibility to development.

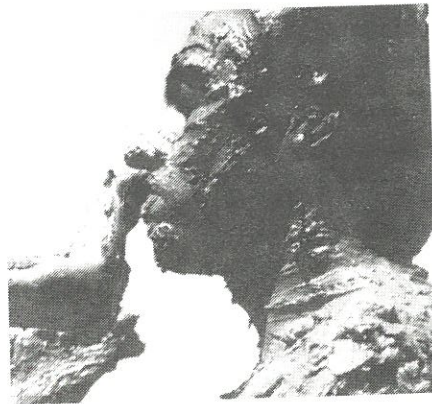
In Westernport, once one such sleepy fishing town on the shores of Westernport Bay, near Melbourne, a battle has developed between developers and local environmentalists. This is a tidal bay, characterised by large mudflats and expanses of mangroves and seagrasses. Of particular concern to the environmentalists are the seagrasses which are at the bottom of the food chain sustaining life in the bay. These grasses are extremely sensitive to disturbances such as oil spills. This bay has become the site of an oil refinery and has since seen the rapid spread of marinas, and the filling in of mangrove areas. As is the case all over Australia, at the centre of this kind of confrontation is the local council which on the one hand wants the area to go ahead, but has also begun to take notice of the voices which oppose rampant development.

This video, in documentary fashion, sets the scene through interviews with local environmentalists, developers and councillors. This is the lead up to the the 'Seagrass Story', the endeavours of a group of local artists and schoolchildren. The artists stress that they are interested in a non-confrontational approach to the situation; they see art as a mode of heightening awareness. That, as one of them points out, has in fact always been the role of the artist; what these artists are trying to overcome is the tendency of art to become mere entertainment and consumer product. They are seeking to reenliven the ritual aspect of art, the capacity of theatre in particular to involve people actively in matters of concern to them. This video

says as much about the role of artists in society as it does about environmental issues per se.

The video depicts the preparations and the final staging of a theatrical event which was a sequel to a similar event held the year before. Since the first staging this group managed to attract financial support and earned the opportunity of having their work captured on film. The preparatory work was both educational and practical. The educational aspect involved helping the children explore different aspects of the seagrass environment. A local naturalist took the children out onto the mudflats where they observed the seagrasses and mangroves, and the kinds of birds and fishes associated with them. This exploration fed into the other aspect of the preparation — the construction of huge three dimensional puppets according to an overall concept of Ian Cumin. He, along with other artists, then helped the children learn how to operate them. This was obviously no mean feat for some of the puppets were at least twenty feet high. One of the main puppets, operated by three children, was a spoonbill, a bird which inhabits the seagrass flats. The making of this puppet was the occasion for a study by the children of the way this bird flies, amongst other things. The artists tried to get the children to dream *into* the world of the seagrasses rather than just look from the outside. Other puppets were simpler; for example, each strand of seagrass was made from a pole with coloured cloth attached along its length; the whole bed of seagrass was formed by a group of children waving their poles, through which other fish puppets were moved. There were 300 people involved in this event, schoolchildren and other locals, which without doubt was an enormous task of coordination.

The final event, which took place on the shore of the bay at dusk, was in the form of a mythical drama depicting a famine caused by the loss of seagrass and the birth of the 'seagrass child'. At one point 'mud people' emerge from the waters of the bay. Along with the puppet work there were pyrotechnics and original music. Obviously the video captures relatively little of the atmosphere of what must have been quite an unusual experience, for participants and onlookers alike, on the shores of that bay. What I had in mind was that this event was never meant to be *just* entertainment; it was intended as an experience of multifacetted involvement of those taking part, of which the final event was a highlight, and itself only one step in the continuing artistic/environmental saga around Westernport Bay.



THE RIVER PIERCE: SACRIFICE II, 13.4.90
The River Pierce Foundation, 1992, P.O. Box 249, San Ygnacio, Texas, 78067.
Distributed by Rice University Press, P.O. Box 1892, Houston, Texas, 7721.

The preparation of this book was the result of an eight year development of an idea for a ritual event/performance piece by the American artist Michael Tacy and collaborators. A group of around two hundred artists, writers, activists, friends, neighbours and a documentary and support staff were participants and witnesses of the three day event which this book documents. The idea evolved within the context of a south Texas town, on the edge of the Rio Grande River which divides the United States of America from Latin America. Concern for the degraded condition of the river was the focus of the performance; owing to massive sewerage and chemical discharges of the decades it has become, according to Tacy, a veritable 'moat of death'. The ritual performance/procession is described as a cry of anguish and concern for the river and a plea for awareness of its state of deterioration. In the words of Tacy: "It seemed to me a specific ritual, on a specific day, would be appropriate. And so for these years the present plan has evolved out of consideration not just of the river as river but to commemorate the body through which the river flows, the earth itself and the people who inherit it and live upon it."

The book documents how, when the Rio Grande became the border between Texas and Mexico as a result of the war in 1846, it became both the literal separation of English-speaking and Spanish-speaking America and a symbol of the desire to keep those cultures as divided as possible. Along the river, on both sides, around 30% of the people exist below the poverty line

compared to the affluence of much of the rest of Texas. In towns along the river up to 90% of all residents are infected with hepatitis by the age of 35 owing to sewerage and chemical discharges into the river. Most of the natural vegetation has been removed along the river to make way for agriculture and development. The residents of the towns are predominantly Catholic, with a Spanish background, and the rise of 'liberation theology' in these communities has been motivated by the need to raise the living standards of the poor and oppressed.

On Good Friday in the town of San Ygnacio, near the Rio Grande in Southern Texas, there is a *Via Dolorosa* procession through the streets. The performance/event described in this book was inspired by this traditional celebration and became an extension of it. The *Sacrifice II* procession followed a route from the town to the river, observing the stations of the cross along the way. The performance as a whole involved various art forms and included the ritual immolation by fire of Tacy's processional sculpture *Cruz: La Pasión*. This sculptural cross had initially been part of an exhibition of work by Tacy which travelled across the major cities of America. Tacy does not consider this sculpture to be a work of art in the usual sense; he writes: "The *Cruz; La Pasión* was never conceived of or made to be a work of art; it was always intended to be a burnt offering and in the burning of it a prayer, a chant, a song of praise, an epitaph, a dance, a litany, an ablution and so many things undefined. I want the process of it becoming whatever it will ultimately be to continue and to exist." As a total artistic expression the *Sacrifice II* performance/event grew out of the particularities of the place in which it was enacted; rooted in the traditional religious life of the local people it was an attempt to reach out and embrace the contemporary social and environmental needs of the area. One participant, Thomas McEvilley, also saw it within the context of postmodernism: "I think a function art performs is this kind of premonitory social role, as a kind of antenna or barometer or thermometer to take the temperature of a society and get the barest intimations of where social change might occur".

The book is structured to provide, from numerous perspectives, an image of the action as a whole. The text, presented in both English and Spanish, is the weaving together of statements by Tacy and other collaborators with a sequential description of the event itself. The greater part of the book is devoted to a photographic documentation of the event, in both colour and black and white. The performance was financially supported and the book published by the River Pierce Foundation, an organisation which funds artistic and educational events which assist the promotion and conservation of the culture and environment of the Texas-Mexico border region.

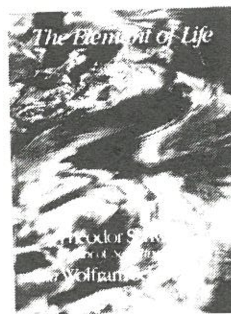
Briefly, the performance/event took place as follows. In the procession the cross was mounted on a cart which was pulled by garlanded mules. As the procession moved down the road towards the river, a chorus of thirteen women and a priest chanted "the litany of rivers, lakes, waterfalls and martyrs." The procession moved past the requisite fourteen crosses placed through a mile of countryside. At a particular point a performance artist, Eloy Tarcisio, worked with red paint on a cross on which cactus leaves had been nailed. At the fourth station the procession was joined by a group of boys from the village, singing and carrying a shrine. Near the river the crowd witnessed a performance by the Chilean artist Eugenia Vargas Daniels of Mexico City and others, who, naked but for mud and grass, were tending bonfires by the river. It is interesting that, in both the performances reviewed here, in different parts of the world and I'm sure unconnected with each other in any direct sense, we have the appearance of 'mud people', in both cases having a particular religious/mythic significance. In the *River Pierce Sacrifice* the 'mud people' are connected with the allegory of Christian myth and the Stations of the cross: "At the end of history, Eden is restored...The Mud People referred not only to the prelapsed Aryan condition but also to the postmillennial condition. Even better that it should be at the end, looking forward into the future, rather than back...The Sacrifice has something to do with the end of an age and the beginning of an age, and the Mud People were the great signal of that event" (Thomas McEvilley). Finally the cross was floated out onto the river and ignited by the leader of the Mud people, then cut loose and allowed to float downstream ablaze. The participants adjourned to a *palapa*, a shelter constructed of willow sticks and draped in black and purple cloths, for a lenten meal and talks. Other smaller festive events occurred over the three day period.

In one sense, like the sacrificial sculpture used in the event, a performance/event of this kind is ephemeral and is really only relevant to a particular moment and place. The book, however, serves a purpose for people in general, which is to indicate how the art performance/event continues to be a

mode in which artists may effectively collaborate, and in which a complex of issues concerning the environment, society and religioun may be related and brought to expression. As Tacy comments: "Sacrifices today are so different from the way they used to be...we could be throwing people, virgins, young children, or virile athletes into the churning current, or our mothers' gold teeth, our food, our jewellery, our Mercedes. But, we live in the Western-most part of the old world on the totally inexplicable edge of the new world. A new form of sacrifice and prayer and concept of infinity is of critical necessity." It's worth noting that artworks such as this usually come into being through the inspiration and efforts of a few individual artists, and often die when the input of those individuals is no longer available.

This is an example of how art becomes religious when it works out of a deep perception of the individuality of a place, and is an authentic expression of the people who live there. Traditional Catholicism is but one aspect of the environment of this part of central America. The Foundation which supported the event, however, is not itself a religious organisation, and is solely concerned with the enhancement of the river and local culture. There have been numerous performances or Actions which have been documented in twentieth century artistic literature; many may be interpreted as forms of social comment; others have a dadaist meaninglessness; some remain at the level of entertainment and spectacle. *Sacrifice II* asks the question as to whether a heightened awareness of water in our environment may give birth to new forms of religious ritual and new directions for art.

Nigel Hoffmann



WATER — THE ELEMENT OF LIFE
Theodor Schwenk & Wolfram Schwenk
Anthroposophic Press, N.Y., 1989.

This book was intended as a follow-up to *Sensitive Chaos*. Both are included here because only together can one obtain an overall picture of the extraordinary work of Schwenk in the realm of water. Part of the book comprises essays by Schwenk's son, Wolfram, mainly relating to the research work which developed out of the initial findings his father presented in *Sensitive Chaos*.

This book is substantially different from *Sensitive Chaos* in form. It is made up of a series of essays, some being the edited transcripts of talks given by both authors. This has resulted in a certain amount of repetition, both within the book and in relation to *Sensitive Chaos*. Notwithstanding, *Water — The Element of Life* presents a new perspective and asks new questions. As with *Sensitive Chaos* this book presents many revelations concerning the nature of water including its characteristic forms and how they related to the development of organic life right up to the stage of human cognition. *Water — The Element of Life* brings all of this into the context of our immediate environmental concerns and asks: how can we, with what we now know about the nature of water, confront the problems of water which are facing us today? Theodor Schwenk believes that the environmental race is actually won by pollution, by the destructive tendencies of modern civilisation which are despoiling and degrading the life structure of the planet. He is asking what can be done in the light of a seemingly impossible situation. In his essays he draws on evidence from many sources to show how dire and difficult this situation is.

Theodor Schwenk says that, although our practical efforts to stop pollution have a certain value, what is essentially required is a new "water consciousness". This book is about the explication of what such a "water consciousness" might be. The old "water consciousness" was the mythic relationship of humans to water, the stage of evolution when the waters were revered as something sacred and full of gods. It was these mythic conceptions which science slowly but surely overtook, eventually rendering water, as with all other aspects of nature, as an object susceptible of quantitative measurement and abstract explanation. In the process water came to be seen as, rather than something sacred, something which can be manipulated in whatever way is socially or technologically expedient. The matter-orientated thinking of science is bound up with what Schwenk calls 'death-related' laws. He is suggesting that abstract scientific laws, while able to take hold of

and explain cause and effect relationship between things, are unable to apprehend the very thing which is most vital and characteristic about organisms — their life. Thus, as Schwenk explains, everything in nature cannot be explained by such abstract laws; there are 'life-related' laws as well. What the author means by a new 'water consciousness' relates to the uncovering of these 'life-related' laws of nature. Water, through its connection to life, is the element through which the living nature of things can be best understood. In Schwenk's words: "... water becomes the great *teacher* at the moment when abstract consciousness crosses the threshold to that other consciousness that once again befriends itself with laws of life" and "through a knowledge of this element out of which we were once physically born, we can attain, in a higher schooling, to a further, second birth on a higher level. Rebirth out of the *spiritual* being of water: the circle closes."

The matter, as presented by these writers, is by no means as straightforward as saying that abstract thought and its 'death-related' processes are merely *bad*, for it is precisely conventional science which offers the schooling which may lead to the new 'water consciousness'. Science teaches precision and conscientiousness in observations and experimental methods. Theodor Schwenk comments: "Absolute honesty, work that leaves no loophole for any sort of pretence — this makes thinking crystal-clear and gives it firm contours". It is this clear thinking which the Schwenks employ in their exploration of the connection between water and life. Water, in one sense, cannot be said to be 'alive' yet without its presence life cannot occur. This connection was explored in detail in *Sensitive Chaos* and here it is summarised and extended to show that in every realm of the earth water is the mediator; in the chemical realm (as the instrument of all chemical change in nature); in the realm of gravity (countering heaviness with buoyancy); it works rhythmically between the dead, mineral realm of the earth and organic life, encompassing both in constant movement which brings what is dead into life, dissolving minerals and incorporating them into living beings.

Delving further into the mediating role of water, Theodor Schwenk, in his effort to reach the crux of our current situation regarding water, moves his focus to the living nature of the earth as a whole. That he can speak of the earth as a living being is something he assumes from the work of many contemporary researchers. The water-body of the earth is a unity which dynamically connects all lesser bodies of water on the globe. Part of this water-body is the atmosphere, through which all water circulates. Here, in the phenomena we call weather, Schwenk finds the characteristics of a living being. Connected with the weather is what he calls the 'warmth organism' of the earth, for water in the atmosphere is a mediator which transmits warmth as convection. It is in the weather patterns related to the seasons that scientists around the world are concentrating efforts to detect the patterns and relationships, the natural global regulators, which bring about optimal life-conditions. It is the balance of these regulators (also related to the inclination of the earth's axis) which is susceptible of being upset by our actions. To illustrate the sensitivity of these regulators, and by way of countering the often-heard argument that nature can always look after itself (us included), Schwenk draws the comparison of a single match starting a bushfire. What, according to Schwenk, is most sensitive in this living earth-entity is water itself. In that role the atmosphere exists between earth and cosmos, taking in influences from the cosmos and passing them into living forms. To degrade the water-body of the earth is to upset the balance of the whole earth organism and its relationship to the cosmos.

Proceeding through these explorations of water, Theodor Schwenk leads us to insights into the new 'water consciousness'. He asks this question: how can the death process taking place in the water and the air be halted and life restored? In his words: "how can the forces of resurrection, wrested from death, find a locus on earth?" This relates equally to the earth's water body and our death-related scientific thinking. In other words, he asks: "how can we give our cognitive capacity the kind of schooling that will enable it to grasp *the nature of life* and to further it in practical work and action?" For: "the problem of rescuing water from death must therefore be solved inside ourselves before we can solve it in the external world".

Water, as Schwenk sees it, is itself the teacher of this new thinking, the new 'water consciousness'. To understand the spiritual nature of life is to become in *thinking* as water is in the physical realm — a mediator between life and death. Thus, just as water has a capacity for *renunciation* (without a fixed form of its own it freely moves between polarities and relates them), so a thinking which is *living* (not fixed in abstract intellectual conceptions) is able to uncover the wisdom necessary to deal with problems which pertain to the

realm of life. It is this reenlivened thinking that can act as a force of redemption for the life realm of the planet.

This leads on to the final essays of the book which are concerned with the practical outcomes of Theodor Schwenk's work. Theodor Schwenk and others founded the Institute for Flow Sciences at Herrischried, West Germany, in 1961, and work has continued there since Schwenk's death in 1986 under the direction of his son, Wolfram. At this Institute Theodor Schwenk worked out the 'drop-picture' method of determining water quality. He writes: "The key finding here was that the *quality* involved actually found expression in the *type of movement* of the fluid medium under study". In the latter part of his life Schwenk devoted himself to problems of the regeneration of water by the introduction of processes of motion based on "specific organic lawfulnesses". In his essays, Wolfram Schwenk describes the continuing development of the 'drop-picture' method. Through this work he is seeking to be able to characterise 'living' water. By this he does not merely mean the water which is certified as acceptable by government health regulations; that is, water which is more or less lacking in pollution and has a sufficient nutrient content — the water we are accustomed to receiving out of our taps. He means that which is capable of *enlivening* the drinker.

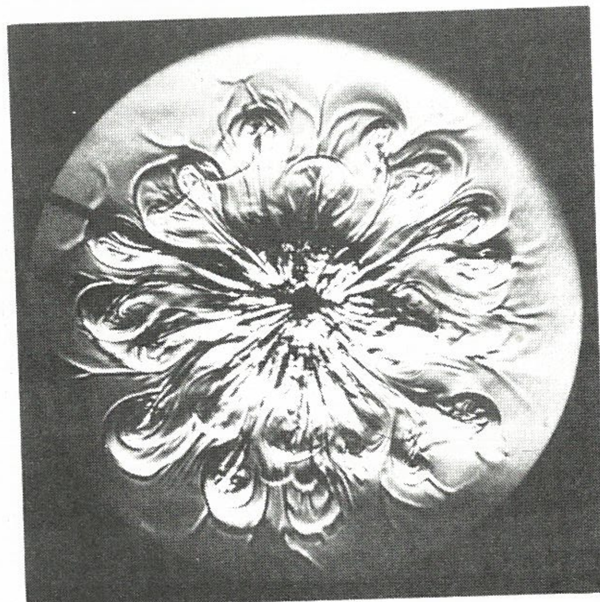
The 'drop-picture' method is roughly as follows. A specimen of water is put in a glass dish, 1mm deep, with an admixture of glycerine, and set in motion by drops of distilled water falling into it at regular five second intervals, under rigorously standardised experimental conditions. Because of the glycerine the resulting movement is rendered visible and photographed using a schlierenoptical device. Spring water, polluted water, spring water which has been channelled in pipes — all of these are clearly distinguishable through observing the movement patterns in the rosette of vortices which develop around the drops. In general, 'good' water, 'living' water shows a wealth of differentiated, highly organised motion patterns indicating that this water has a high formative (life creating) capacity, whereas polluted and even merely piped water shows a weakening of this formative capacity, visible through much less structured movement patterns.

What is the relevance of this process, being carried out by scientists under strict laboratory conditions, to *art*? In fact the word 'art' is mentioned only once or twice in the whole book and then only in passing reference to culture in general. It is nevertheless possible to recognise that when both these writers speak of 'living thinking', the new 'water consciousness', they are talking about a mode of cognition that is as close to art as it is to science yet something quite different from both as conventionally understood. Wolfram Schwenk writes in the chapter entitled 'Water as Nutrient':

> "If we want to transform our subjective impressions into objective certainty and to express them in clear concepts, we have to practise activating our sense impressions and, in disciplined observation of our own perceptive activity, develop the capacity called by Goethe 'the power of perceptive judgement'".

It is thus apparent that it is through the cultivation of 'living thinking' that the observations of the movements created by the 'drop-picture' method become more than 'merely subjective' (a description usually reserved for art) and enter the domain of a truly 'objective' science. Indeed, this book, together with *Sensitive Chaos*, makes it abundantly clear that, only with scientific thinking enlivened by an artistic sense, can water and 'life' itself be understood with any depth.

Nigel Hoffmann



Drop-picture of drinking water from a mountain spring — 'living' water, showing a rhythmically structured, harmonious rosette pattern (after Schwenk).

LIVING WATER — VIKTOR SCHAUBERGER AND THE SECRETS OF NATURAL ENERGY
Olof Alexandersson,
Turnstone Press, 1982.

This book outlines the extraordinary life of Austrian forest-warden Viktor Schauberger (1885-1958). Alexandersson paints him as an unbending, uncompromising and honourable man. Not only was he a sensitive, bearded ecologist who warned, ahead of his time, of the impending destruction of nature, but an individual whose insights and inventions described an alternative science based on living nature.

Schauberger's detailed observations of virgin forests and streams, of a snake's movements and the influence of lunar phases and water temperature on flotation, enabled him to design a 50km long wooden chute for transporting felled logs. This not only defied prevailing theories, but prevented his employer, the Prince Adolf Schaumburg-Lippen, from becoming bankrupt and gave Schauberger instant fame, much to the disgust of some.

From here the reader is introduced to his flying saucer inventions, his meeting with Hitler, his attempts to extract energy from water and his unusual agricultural inventions. It would be easy to dismiss these as unscientific flights of fancy, were it not for the substantial historical documentation and eyewitness accounts, the tantalising photos and diagrams and the continuing research by others.

Schauberger had to invent new words and give different meanings to established scientific terms in his attempt to outline a new science of life. Whilst the author apologises for the lack of scientific rigour and the sketchiness of accounts, one is still left frustrated at being unable to fully understand concepts such as 'cycloidal spiral motion' — the form of motion central to his thesis. Alexandersson writes that "the form of movement which creates, develops, purifies and grows is the hyperbolic spiral which is centripetal and internally moves towards the centre". Traditional mechanistic science is described as being based on centrifugal, disintegrating motion, explosive as opposed to implosive, and leading to the destruction of nature.

Clearly many of Schauberger's views were based on detailed observations and intuitive insights but without the clarity and overview achieved by his contemporary compatriot Rudolf Steiner; both are describing and working with a life-force not yet recognised by orthodox science (as did Reich [orgon energy] and Tesla, and perhaps others.)

It is not surprising, then, that others have had mixed success in implementing his inventions and theories. The author cites groups and newsletters around the world; numerous individuals are today working with his ideas, not the least of whom is his son, Walter, who founded the Pythagorean Kepler School in Austria (in Australia a 'water conditioner' has been developed and marketed). In his own time his work was taken seriously enough to lead American industrialists to lure him to the U.S.A. Their attempts to 'buy him' are described as indirectly leading to his loss of spirit and subsequent death.

Alexandersson's book was written in 1976 and translated into English in 1982 and one can expect further attempts to unravel Schauberger's secrets will sooner or later be published. This book serves as a fascinating introduction to a remarkable ethical individual who shows us that a true basis for ecological sustainability (rather than conservation) requires us to base our civilisation and energy source on the principles of Living Nature rather than on forces of destruction. In the words of a colleague who met him in 1942: "One has the distinct feeling that here spoke a man, endowed with an inner perception, before whom the elements of Nature and the structure of all life are unveiled, and in their correct order."

Mark Baxter