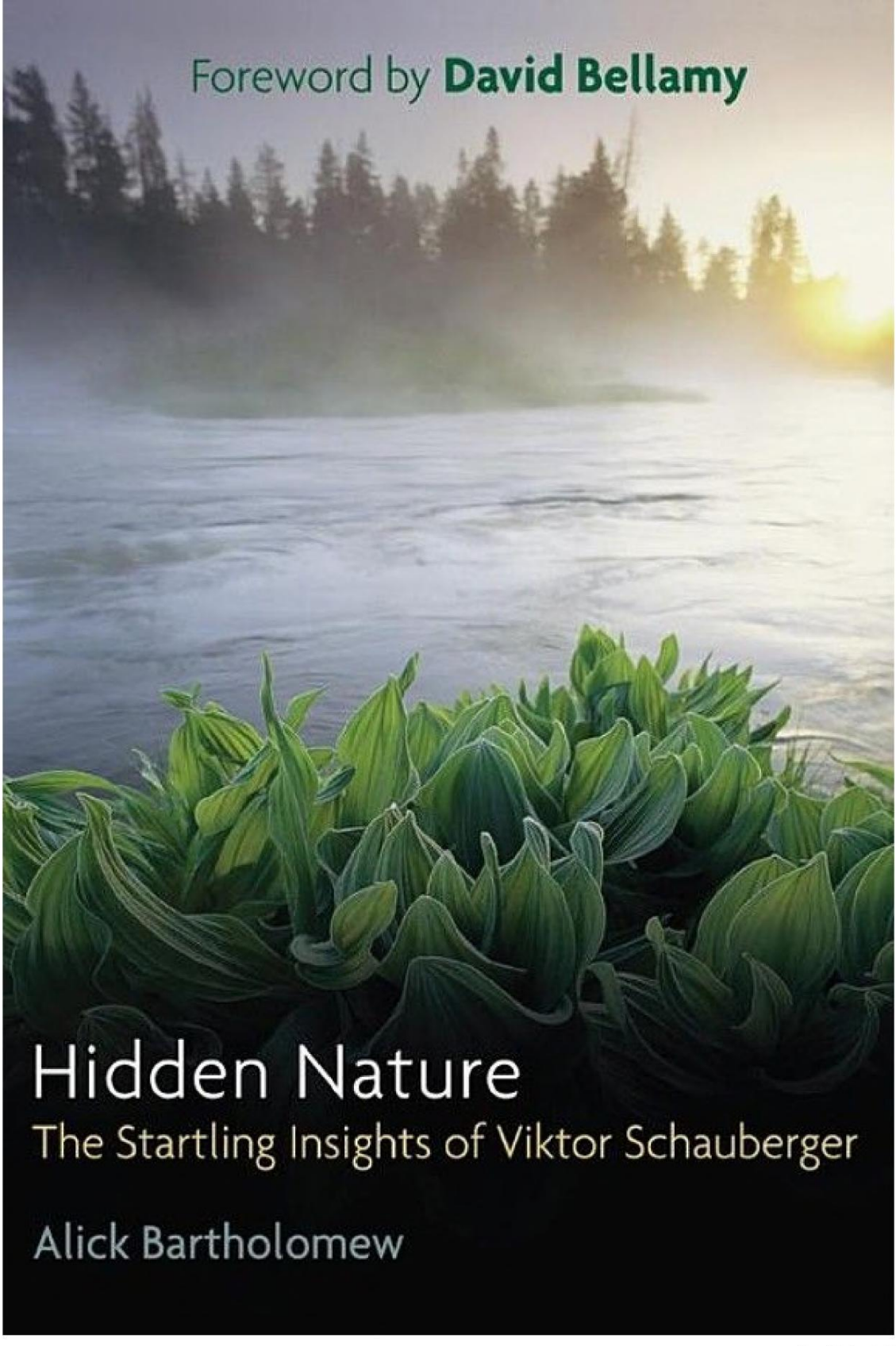

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Foreword

Water is the commonest substance on the face of the Earth, yet we really know very little about this essential source of life. We do know that without it there would be no life — indeed there would be little in the way of chemical reaction, for water is the universal catalyst. Water is also our potential nemesis, for today it is widely agreed that if there is another world war, it will be waged over this precious resource. Water in a state fit enough for human consumption or for succouring the life cycle of the brown trout is now in short supply and its availability is diminishing every day.

Before Austria had stripped her mountains of all her old growth forests, Viktor Schauberger, a forester, observing how a trout could maintain its station in the midst of a turbulent stream, discovered the secret of living water. Distilled from the sea and leaving most of its burden of salt behind, it droppeth as the gentle rain from heaven, taking up kinetic energy as it makes its way back to ordnance datum (standard sea level), itself controlled by the balance of the global greenhouse.

En route this living water absorbs minerals from both soil and bedrock sufficient to nurture the pulse of life itself, tiny herbs, some full of the power of healing, and the natural vegetation that generates organic soil. The trees, reaching up to the Sun, power houses for transforming energy, are driven by living water, ameliorating the climate near the ground, controlling erosion and helping to maintain the life-giving water cycle.

If this cycle gets out of balance in any way, the consequences are dire, as insurance companies are now discovering. Drought, floods, winds and wild fire out of control, and perhaps worst of all, eutrophication, the clever name for too many nutrients choking the very arteries through which living water used to meander its self-cleansing way down to the sea.

There is much in Schauberger’s philosophy that gets up the noses of the science that sees only financial profit at the end of their glass telescope of knowledge. Alick Bartholomew is to be congratulated for bringing Schauberger’s vision into focus in this book at the most

opportune time. Wave power is beginning to come on stream with the promise of base load electricity cheap enough to split, not the polluting atom, but the water molecule, into oxygen and hydrogen — the latter to fuel the much discussed non-polluting, fuel cell-based, hydrogen economy.

Is this a wise strategy? In the absence of Schauberger as my mentor I sat beside the stream in my garden with Tornado jets making warlike passes overhead, and watched a trout enjoying what are perhaps the only real human rights, peace and access to living water.

David Bellamy,
Bedburn, February 2003

Introduction

'I no longer own my own mind. I don't own even my own thoughts. After all I've done, finally there is nothing left. I am a man with no future.'[1] These were the words of Viktor Schauberger, an Austrian naturalist, the pioneer of Eco-technology (working with Nature) who had devoted his life to demonstrating how the desecration of our environment proceeds directly from our complete ignorance of how Nature works at the energy level. His controversial credo was that humanity must begin, with humility, to study Nature and learn from it, rather than try to correct it. We have put the future of humanity at risk by the way we produce and consume energy. His aim was to liberate people from dependence on inefficient and polluting centralized energy resources and generation of power.

Viktor was communicating his distress to his son, Walter, on the plane home from Texas after a nightmare of exhausting cross-examination to extract the secrets of the devices he had developed which demonstrated free energy, anti-gravity and fuel-less flight. He died five days later on September 25, 1958, in Linz, Austria, of a broken heart. Father and son had embarked on an ambitious, but ill-conceived, scheme hatched by an American 'consortium' which probably had CIA and atomic energy connections, in order to persuade him to give up the keys to his mysterious research (see Chapter 18). Schauberger had in 1944, under threat of death, been forced to develop a flying saucer programme for the Third Reich, the secret weapon which, had it been initiated two years earlier, might well have tipped the war's balance in Germany's favour.

Schauberger's inspiration came from studying the water in fast-flowing streams in the unspoilt Austrian Alps, where he worked as a forest warden. From his astute observations he became a self-trained engineer, eventually learning, through the implosive, or centripetally moving, processes that Nature uses, how to release energy 127 times more powerful than conventional power generation. By 1937 he had developed an implosion motor that produced a thrust of 1,290m/sec, or about four times the speed of sound. In 1941 Air Marshall Udet asked

him to help solve the growing energy crisis in Germany; however the research came to an end when Udet died and the plant was subsequently destroyed by Allied bombing. When in 1943 Heinrich Himmler directed Viktor to develop a new secret weapon system with a team of engineer prisoners-of-war, he had no choice but to comply.

The critical tests came just before the end of the European war. A flying disc was launched in Prague on February 19, 1945, which rose to an altitude of 15,000 metres in three minutes and attained a forward speed of 2,200kph.[2] An improved version was to be launched on May 6, the day the American forces arrived at the Leonstein factory in Upper Austria. Facing the collapse of the German armies, Field Marshal Keitel ordered all the prototypes to be destroyed.

Schauberger had moved from his apartment in Vienna to the comparative safety of Leonstein. Meanwhile the Russians pushed in from the East and captured Vienna; a special Soviet investigation team ransacked his apartment, taking away vital papers and models, and then blew it up.

The Allies seemed to be well aware of Schauberger's part in developing this secret weapon. At the end of hostilities, an American Special Forces team seized all the equipment from his Leonstein home and put him under 'protective U.S. custody' for nine months' debriefing. It seems likely that they could not fathom his strange science, for they let him go, although this group, detailed to enlist as many of the front-line German scientists as possible, took back scores of other 'enemy' scientists to give a vital boost to American industrial and military research. They forbade him from pursuing 'atomic energy' research, which would have left him free to follow his dream of fuel-less power.

For the following nine years Viktor could not continue his implosion research because the high quality materials needed for his very advanced equipment were beyond his means, and he had no sponsors. In addition, he may have been haunted by remorse for having been forced by the German SS to design machines of war. Schauberger was essentially a man of peace who, above all, wanted to help humanity become free; so he turned his attention to making the Earth more fertile, developing experimental copper ploughshares.

Levitation and resistantless movement

This strange life path had started on his return to civilian life after the First World War, when Viktor Schauberger went to work in the mountains. His experiences of unspoilt Nature were life-changing. One such that would set him on a lonely course to change the course of human life for ever, he describes graphically:

> It was spawning time one early spring moonlit night. I was sitting beside a waterfall waiting to catch a dangerous fish poacher. Something then happened so quickly; I was hardly able to grasp it. The moonlight falling onto the crystal clear water picked up every movement of a large shoal of fish gathered in the pool. Suddenly they dispersed as a big fish swam into the pool from below, preparing to confront the waterfall. It seemed as though it wanted to scatter the other trout as it quickly darted to and fro in great twisting movements.
>
> Then, just as suddenly the large trout disappeared into the huge jet of falling water that shone like molten metal. I could see it fleetingly, under a conically shaped stream of water, dancing in a wild, spinning movement, which at that moment didn't make sense to me. When it stopped spinning it seemed then to float motionlessly upward. On reaching the lower curve of the waterfall it tumbled over and with a strong push reached behind the upper curve of the fall. There, in the fast flowing water, and with a strong movement of the tail, it disappeared.
>
> Deep in thought, I filled my pipe, and as I wended my way homewards, smoked it to the finish. Often subsequently, I witnessed the same sequence of behaviour of a trout leaping up a high waterfall. After decades of similar observations that manifested like rows of pearls on a chain, I should be able to come to some conclusion. But no scientist has been able to explain the phenomenon to me.
>
> With the right lighting, it is possible to see the path of levitational currents as an empty tube within the veil of a waterfall. It is similar to the tunnel in the middle of a circulating vortex of water plunging down a drain, which brings up a gurgling sound. This downwardly-directed whirlpool drags everything with increasing suction with it into the depths. If you can imagine this whirlpool or water-cyclone operating vertically,

> you get the picture of how the levitational current works and you can see how the trout appears to be floating upward in the axis of fall.[3]

Viktor used to spend hours watching fish in the streams. He was fascinated by how the trout could lie motionless in the strongest current and then, if alarmed, without warning, would dart upstream rather than be carried down with the flow. Having learned from his family about the importance of temperature on the energy potential of water, he did an experiment. He had colleagues heat up 100 litres of water that, on his signal, they poured into the fast-flowing mountain stream some 150 metres upstream from where he stood. Viktor noted how the trout he had been observing became agitated, and soon was unable to hold its station in the fast flowing stream, thrashing its tail fins to no avail. The minute, but nevertheless abnormal, rise in the average temperature of the water and the chaoticized flow that resulted, had interfered with the trout's hovering ability. Viktor searched the textbooks in vain for an explanation of this marvel.

He would often quote these experiences with the trout as having the most influence on developing his ideas, for temperature and motion were the foundations of his theories and discoveries. He subsequently developed a generator to produce energy directly from air and water, naming it the 'trout turbine' in honour of his mentor, though it was later called the 'implosion machine.'

The non-conformist

Viktor Schauberger was discredited and criticized by 'the experts,' as pioneers have been in the past, from Galileo to Max Planck. He insisted that we have betrayed our calling and our heritage, by usurping the role of God and trashing our environment. He saw that we were hell-bent on a path of self-destruction, and predicted that, within a generation, our climate would become more hostile, our food sources would dry up, there would be no healthy water, and illness, misery and violence would predominate.

Where have conventional scientists gone astray? By not observing carefully how Nature works. If they did, they would be able to formulate her laws, as Schauberger has done, and then comply with them, so that

human society could come into harmony with our environment. As he so often said, ‘Comprehend and Copy Nature.’ Instead, modern scientists believe we are above Nature and are free to exploit the Earth’s resources without consequence.

Schauberger spelled out clearly exactly where we have gone wrong with our technology. How can we start to put things right? Certainly by a complete reversal of the way we do things. This can involve only a sea change in the way we regard our lives, and a personal commitment to help bring about a major shift in our society. Only through sufficient numbers joining together in common cause can these changes begin.

He criticized mainline science for its arrogance and herd instincts. He also castigated scientists for their blinkeredness, their inability to see the connections between things. Schauberger did not blame the political hierarchy for the world’s woes, as we often do today. He believed that political leaders are basically opportunists and pawns of the system. It was his own adversaries, the ‘techno-academic’ scientists as he called them, whom he held to blame for the dangerous state of the World.[4]

Visionaries and pioneers are inevitably a challenge to the establishment in whatever field, for they pose an imagined threat to the interests of those who benefit from the status quo. The degree of vilification seems to depend on the level of rewards at stake. Thus science, as perhaps the most exclusive and arrogant of disciplines, has done so much throughout history to undermine great innovators like Copernicus, Kepler and Galileo to, in our times, the biological pioneers James Lovelock, Rupert Sheldrake and Mae-Wan Ho.

Despite, or perhaps because of, his interrupted education, Viktor retained a great thirst for knowledge. His wife found domestically disruptive his tendency to stay up all night, pouring over books of every kind, especially the more esoteric variety. There was no question that Viktor felt he had a calling. This was evident from the fact that often he seemed to write in a trance-like state, returning to normal consciousness quite surprised by what he had just written!

Schauberger was a man of unshakeable self-confidence and inner conviction about the viability of his theories, and unsurprisingly had a lifelong battle with orthodoxy. Callum Coats describes how on one occasion during the Nazi era, good fortune saved his life from being taken in a sinister way.[5] He did, however gain important support. This was inevitably from the few scientists who were not swayed by greed or

jealousy and were of more independent mind. One was the Swiss Professor Werner Zimmerman, a well-known social reformer who published articles by Viktor in his ecologically oriented magazine *Tau*. Another was Felix Ehrenhaft, professor of physics at the University of Vienna, who helped with Viktor's calculations for his implosion machines. A third very loyal friend was Professor Philipp Forchheimer, a hydrologist of world repute.

Most people have heard of Viktor Schauberger only in connection with his inspired ideas about water or of the energy-saving machines that harnessed the enormous power encapsulated in lively water. They were, indeed, so fundamental and important as to justify his reputation as an ecological pioneer. However, as we are concerned with the broader challenge of restoring the damage wrought by humanity on the Earth, we shall need to present Schauberger's larger worldview of how Nature works.

Walter Schauberger, who unlike his father, had a formal education in science and was, for a time, a university lecturer in physics, worked hard to make Viktor's ideas more accessible to mainstream science. After he did a lecture tour in 1950 at a number of England's top universities, some of the distinguished scientists were asked what they thought of the Schauberger physics. While they agreed that the theories were quite convincing, the problem, it appeared, was that 'it would mean rewriting all the textbooks in the world.'[6]

An alternative worldview

Viktor Schauberger suffered much from the vindictiveness of the scientific establishment towards him. Nevertheless, his constant complaints about them obscure his principal message, which is far more important than academic arrogance per se. This is that our whole culture is completely under the thrall of a materialistic worldview or way of seeing; we are caught in the excitement of apparently being free to do anything we want, and by the glamour of possessing lots of riches and distractions. Our science is but the product of this worldview, as is our philosophy and education, our religion, our politics and our medicine. You don't need to subscribe to conspiracy theories to realize that all aspects of our society suffer from a grand delusion that is contributing to the breakdown of our world order and to the collapse of our ecosystems.

The real issue is that the intellectual movement of the late seventeenth century, the Enlightenment, and its equivalent in science, Rationalism, have caused a great schism in human society. The philosopher René Descartes (famous for his 'I think therefore I am') has a lot to answer for. That movement put man on a pedestal, introduced the idea of humanity being apart from Nature and started to interpret all natural phenomena by a process of deduction. The effect has been a separation of thinking from experience, of head from heart. Because of the dominance of scientific determinism in our culture, the more intuitive way of knowledge is considered as suspect, but there is a new awakening taking place at all levels of society of people wanting to get in touch with their intuition, who feel that rationalism is in fact the Great Delusion.

We have experiences every day that fall outside the accepted conventions of reality; like little synchronicities, intuiting events, the sensing of different qualities of 'atmosphere' as emanations from people, situations or places, the power of thought over action, communication with a household pet. If we share these with like-minded friends we feel like conspirators discussing something taboo that the thought police might catch. At best these phenomena might be labelled woolly, like 'psychic' experiences. We are lost because there is no system or structure to 'make sense' of an important part of our lives. They are not part of conventional wisdom.

Viktor Schauberger was one of the first to put in a scientifically verifiable framework a study of natural processes set free from the constraints of rationalism. He has widened our understanding of our place in the world by describing a worldview of a natural science that includes these experiences without recourse to scientific, religious or philosophical dogma. By understanding how Nature works, we can begin to relate our experiences to a much wider and more exciting worldview. Rachel Carson, who is credited with having initiated the environmental movement with her book *Silent Spring*, was a brave woman for taking on the multinational corporations. Schauberger is all the braver for taking on our conventional worldview.

There must be a fundamental change in the way we see the world (including our environmental policies), before change is possible. Have Viktor's warnings been vindicated? It is over 45 years since his untimely death, and much of what he prophesied has come to pass even earlier than he foresaw. There was some hope before September 11, 2001, that

environmental awareness was gaining ground, if slowly. Recognition of the critical imbalances we have created in our atmosphere and of the urgent need to change our priorities from consumption to conservation was starting to spread. Now we seem to have backtracked a generation and we can't even agree to implement the kind of cuts in carbon dioxide emissions that are essential to avoid catastrophic climate change.

We feel that Schauberger's perceptions are a vital key to understanding where our culture has gone wrong and that our future as a species depends on being able to reconnect with the natural processes he rediscovered. We shall, therefore, bring into twenty-first century relevance his views of how Nature works and where our society has gone wrong, to see what we can learn from his insights.

Viktor has a singular way of deprecating our culture, as the following comment on our conditioning reveals:

> Humanity has become accustomed to relate everything to itself (anthropocentrism). In the process we have failed to see that real truth is a slippery thing upon which the perpetually reformulating mind passes judgment almost imperceptibly. In the main all that is then left behind is whatever was drilled into our brain with much trouble and effort, and to which we cling. To give rein to free thought, to allow our minds to flow freely and unimpeded, is too fraught with complications. For this reason the activity arising from these notions inevitably becomes a traffic in excreta that stinks to high heaven, because its foundations were already decayed and rotten from the very beginning. It is no wonder, therefore, that everywhere everything is going wrong. Truth resides only in all-knowing Nature.[7]

Schauberger predicted that modern human culture's destruction of the creative energies of Nature would result in greater violence and depravity in society. If we were to pay heed to what Nature requires of us, would we witness a reversal of this observable deterioration, and a gradual coming back into balance of a human society that would eventually be able to live in tune with Nature?

But as in our hubris we believe we are at the peak of material human achievement, there is a reawakening of the human spirit, and a great need is being reborn to reconnect with Nature, with our source. This book

attempts to encourage and nurture this need.

Towards a science of Nature

The majority of people in the UK oppose the genetic modification of food because they know in their hearts it is against Nature. The policy is being driven by the commercial interests of big business supported by a compliant political climate. Above all, it is justified by a science with a materialist worldview that believes Nature exists to be manipulated and exploited for the imagined benefit of humanity. Accountability is apparently not an issue.

The national debate on GM held in Britain in 2003 showed that most people are deeply disturbed by the arrogance of the view that Man can do anything he wants on this Earth. But they have no science to turn to for rebuttal. What is needed is a Science of Nature to supplant the misguided science presently taught in our schools and universities. We need to work with a holistic view of Nature as omnipotent on the Earth, whose laws govern us humans as well and which we flout at our peril — in brief, a Nature with which we must learn to cooperate with humility.

What are these laws of Nature? How are we to know what is our place, and what is demanded of us? Viktor Schauberger excelled as a teacher of the science of Nature. He describes and illustrates, as few have done, how Nature works, with its marvellous and complex processes at the heart of the evolution of consciousness.

Viktor Schauberger is known at present only to a small, holistically-inclined audience that has a strong commitment to environmental issues, to organic growing or to the development of alternative energy sources. Much of the literature on Schauberger is sometimes difficult to follow for the less committed. This book draws on Callum Coats' seminal book on Viktor's work, Living Energies. We hope that the less technical approach of our book will facilitate for a broader audience how indispensable are Schauberger's insights if we wish to understand our present ecological predicament. The great ideological conflict of this new century will be between the very limited and flawed mechanistic/deterministic worldview and the holistic understanding of life as a wondrous, intimately interconnected and spiritual whole.

Notes

1. *Living Energies*, p. 28.

2. ‘The Emergence of Biotechnology,’ by A.Khammas, *Implosion* magazine no.83, p. 19.
3. The Schauberger Archives, Linz, Jan, 1952.
4. The scientific environment has considerably narrowed. Scientific research in the 1930s was largely government funded, and research for the most part was independent of commercial interest. Schauberger would be appalled by the present environment which, still identified with the material viewpoint, is now almost entirely dependent on industrial funding and the consequent demand that scientific research serves the needs of business and commerce. In addition, the anonymous ‘peer review’ system is a form of censorship against those who propose research that does not conform to convention, or which threatens the reviewer’s own agenda.
5. *Living Energies*, p. 9. His arch enemies, the Viennese Association of Engineers, had hatched a plot to dispose of him in a mental hospital, under SS observation. Schauberger was to go into the Vienna University clinic for a routine examination of his WWI wounds. Before this, by coincidence, he had tea with an old friend, Mrs Primavesi and told her he would return in twenty minutes. When he did not, and she found he had not returned home either, she went to the nearby clinic, whose director she knew well, refusing to leave until Viktor had been found. He turned up in the portion of the hospital reserved for the mentally insane, trussed up in a straightjacket waiting for the lethal injection (the standard practice for the disposal of undesirables in that regime). Needless to say, she quickly extricated him. (Another theory is that the plot against him was ordered by Hitler himself, who had met Schauberger.)
6. See also Chapter 18, p. 252, for Richard St Barbe Baker’s account.
7. Viktor Schauberger, *Our Senseless Toil*.

PART ONE

An Alternative Worldview

1. Viktor Schauberger's Vision

Our natural world is essentially an indivisible unity, but we human beings are condemned to apprehend it from two different directions — through our senses (perception) or through our minds (conceptual). A child just observes and marvels, but as our rational minds become trained we are taught to interpret what we see, usually through other people's ideas, in order to 'make sense' of our sensory experience. Both are forms of reality, but unless we are able to bring the two aspects meaningfully together, the world will present nothing but incomprehensible riddles to us. This, in fact, is the basic shortcoming of our present human society. It is the great weakness of the prevailing scientific orthodoxy. As Schauberger noted:

> The majority believes that everything hard to comprehend must be very profound. This is incorrect. What is hard to understand is what is immature, unclear and often false. The highest wisdom is simple and passes through the brain directly into the heart.[1]

Some of the pioneers of science were able to bridge this dichotomy. Their way was to immerse themselves so deeply in the world of pure observation and experience, that out of these perceptions the concepts would speak for themselves.

Viktor Schauberger (1885–1958) possessed this rare gift. As a result of this, more than anyone else of his time he foresaw, as early as the 1920s, the environmental crises in which we are now engulfed. Viktor's forebears had a long tradition of caring for the welfare of the natural forest and its wildlife in the Austrian Alps. Although he was born into a family that cherished unspoilt Nature, Viktor, like most pioneers, was the rebel amongst them.

Born one of nine children, he seemed to get on well with his siblings. His father, nicknamed after the legendary giant 'Ruebesahl,' as he was 6' 8" tall, did not relate well to the young Viktor. He resented the young man rejecting his paternal advice to improve himself with a modern academic training. His brothers acquiesced with their father. The one to

whom Viktor remained closest was his mother. But he told how both his parents believed in the healing power of water, and of their insight that the quality and transportive power of water in a stream was particularly strong on a cold night, and more so under a full Moon.

Viktor was a dreamy child, but was endowed with an extraordinary quality of observation, a keen intellect, and evident intuitive and psychic abilities. As a boy he would spend hours by himself in the forests, exploring streams, watching the animals and studying the plants. He was able to experience first hand what he had first heard from his family, and more, about the life of the natural forest and its creatures. He had no interest in the academic path and declined the opportunity to go to forestry college. He did some more practical training instead, and served an apprenticeship under an older forest warden. Married young, Viktor moved to a post in a virgin forest 93 miles (150 km) south into the mountains. Four weeks after his son was born, Viktor was drafted in 1914 into the Kaiser's army.

After the war he quickly rose from junior forest warden to gamekeeper and became the head warden of the forest and hunting domain in Brunnenthal/Steyerling owned by Prince Adolf zu Schaumburg-Lippe. In this large wilderness area, almost untouched by man, Schauberger was able to study how Nature works when left undisturbed. Here biodiversity was undamaged, with many magnificent trees, an abundance of wildlife, and unspoilt streams teeming with fish and other creatures.

The water wizard

Water was always Viktor's fascination. One day, accompanied by his foresters, he came to a remote upland plateau where there was a legendary spring that emerged from a dilapidated dome-like structure. Schauberger ordered it to be pulled down for safety reasons. One of the older foresters then warned him that if the structure were removed the spring would dry up. Taking note of the old forester's advice, and as a verifying experiment, Schauberger requested that the structure be carefully dismantled, with each stone numbered and its place marked. When Viktor passed again some two weeks later, he noted that the spring had indeed dried up due to exposure to the Sun's rays. Immediately he ordered the structure to be carefully rebuilt and a few days later the

spring began to flow again. This taught him that water liked to flow in cool darkness.

Viktor's abiding interest was to discover how to generate energy using Nature's own methods. He worked out how a trout is able to screw its way up a waterfall by hitching a ride on strong levitative currents, and using this principle, the first generator he developed was the 'trout turbine.' To perfect this he needed more precise information on how a trout is able to stand motionless in a fast moving current, and indeed how it can suddenly accelerate upstream. The diagram illustrates this amazing phenomenon (Fig. 1.1).

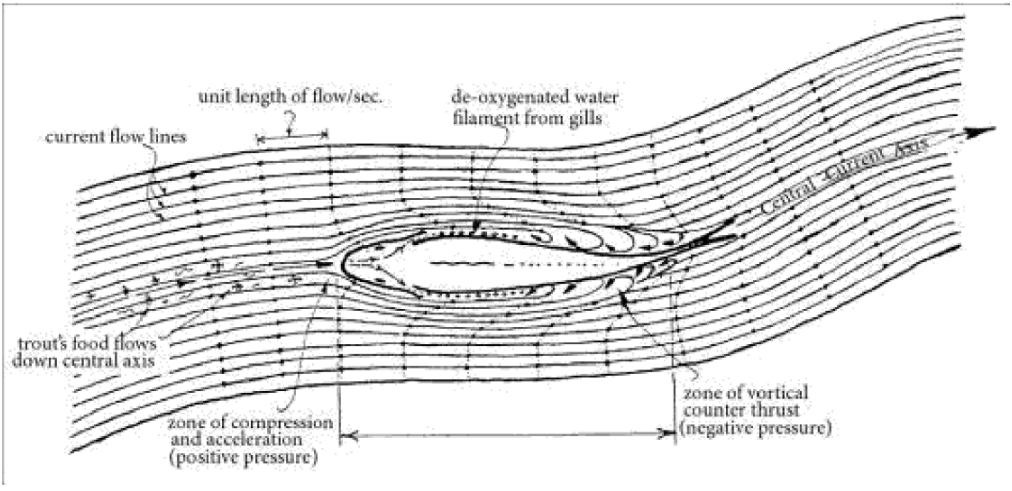

Fig. 1.1. The stationary trout.

The trout normally swims in the middle of the central current, where the water is densest and coldest. Its body displaces and compresses the individual water filaments causing them to accelerate. As their critical velocities are exceeded, vortices or countercurrents are formed along the rear part of the trout's body, providing a counterthrust to the current, allowing the trout to remain stationary in the fast flowing water. If it needs to accelerate, it flaps its gills, creating a further vortex train along its flanks, increasing the counterthrust upstream.

The trout is holding its station in mid steam where the water is coldest, densest and has most potential energy. Viktor studied the gills of the fish and found what he thought were guide vanes which would direct the water flow into a powerful backwards vortex current. Its shiny scales minimize friction with the water, but they also create scores more of little vortices that amplify the *upstream* counter current, particularly towards

the tail, which cancel out the pressure on the fish's snout. A zone of negative thrust is created along the whole of the trout's body and so it stays in the same place. These counter currents can be increased by flicks of the tail, creating negative pressure behind the fish. Flapping of the gills amplifies the vortices along its flanks, giving it a sudden push upstream. The faster the gills move the more oxygen-deficient water is expelled from the body. This combining with the free oxygen in the water, causes the water body to expand, with an effect on the fish similar to squeezing a bar of wet soap in your hand.

Another experience that Viktor often quoted as significant for his growth in understanding, occurred when he had shot a chamois buck on a frosty night under the full Moon. The buck fell into a ravine and, attempting to retrieve it, Schauberger fell down a snow chute to the bottom. In the bright light of the Moon, he became aware of movement in the stream below where he stood. Some green logs were bobbing up on the surface, then sinking to the bottom, as though they were dancing. And not only that, but a large stone began to gyrate at the bottom, and then came to the surface, where it was immediately surrounded by a halo of ice. Other stones also surfaced, and he saw that they were all egg-shaped. It seemed that no uneven or ragged stones would float in this way. Schauberger developed his ideas of different forms of motion and shapes from these observations.

Having seen how water could carry its greatest load on a cold, clear night, he made practical use of this observation. During the winter of 1918, the town of Linz was suffering a severe shortage of fuel as a result of the war when the draft animals had been commandeered. There was a small stream that ran through narrow gorges and which was considered unsuitable for transporting logs, but he wanted to try out his ideas using this stream. His offer to help being accepted by the authorities, he describes how he proceeded:

> I had observed that an increased water level after a thaw builds up sandbanks that are then partially dispersed when the water temperature drops during clear cool nights. I then waited for an increase in the strength of the water current. This takes place in the early hours of the morning, when it is coldest, and particularly at full Moon, although the volume of the water is apparently less due to its compression on cooling. I planned for the timber to be

put in the stream under these conditions, and in one night 1600m^3 were brought down to the valley.

Viktor had discovered that when water was at its coldest, it had much more energy that enabled it to carry more sediment, gouging out deposits of sand, and concluded that in these conditions it would be able to carry a greater weight of logs. This was a principle that enabled him to turn upside down the current theories of hydraulics, and particularly the methods of river and flood management.

Log flumes

Schauberger was looking for a way to demonstrate to others his ideas about movement in Nature, and to discuss them with technical experts and scientists. His opportunity came in 1922 when the owner of the forest and hunting reserve on which Viktor was a junior warden, Prince Adolf zu Schaumburg-Lippe, was looking for a way to avoid bankruptcy. (His wife, the Princess, had very expensive tastes.) After World War I there was a demand by the expanding building industry for timber, and inaccessible stands of mature trees were earmarked for felling. The timber flotation methods of the time were fairly crude, straight channels running down the valleys, which caused the logs enormous damage, many being good only for firewood.

The Prince offered a prize for the construction of a flume to bring logs down from the remote areas, and Viktor eagerly submitted his plans. These were, however, rejected by the administrators of the estate as totally unworkable, as the proposed method went completely against accepted hydraulic principles. Through a chance meeting on a hunting expedition, the Princess asked Viktor what savings could be achieved through his method. On claiming that he could offer a cost of one schilling per 1m^3 against the normal cost of 12 schillings per 1m^3 for flotation, she offered to have his salary trebled should he succeed, despite his lack of academic qualifications. The Prince, driving a hard bargain, made a condition that Viktor should build the flume at his own expense and that it had to deliver a minimum of 1,000m^3 daily.

There was much scoffing by the experts who judged Schauberger completely mad, and who made malicious predictions of the outcome; as Viktor describes:

The construction was completed after some four months. The great timbers were in position. The day before the inauguration I tried a test. An average sized log was put into the flume. It floated down for about 100 metres and then suddenly grounded on the bottom, causing the water behind to rise and overflow the flume. I saw the scornful faces of my workers, realized that I had miscalculated and felt discouraged. The log was taken out of the flume. I thought that there was too little water and too sharp a drop. I did not know what to do. So I sent my workers home so that I could quietly consider the problem.

The curves of the flume were correct; of that there was no doubt. So what had gone wrong? I walked slowly along the flume until I came to the trap and the sorting basins, from which a further length of flume continued. The basins were full. I sat on a rock above the water in the Sun.

Suddenly I felt something moving below my leather trousers. Jumping up I saw a coiled snake. I picked it up and threw it away; it fell into the basin and tried to get out, but the bank was too steep. As it swam back and forth I was amazed that it could swim so fast without fins. Observing it through my binoculars I saw its peculiar twisting movements in the clear water. Finally the snake reached the far bank. For some time I stood quietly and went over in my mind the snake's bodily movements of horizontal and vertical curves. Suddenly I understood how it had done it!

The snake's movement was that of a spiral space-curve twisting like the horn of a Kudu antelope. Calling back his workers, he ordered the holding basin to be emptied and the log removed. He then gave instructions to attach thin wooden slats to the curved sides of the flume walls, which would act like the rifling in a gun barrel, and would make the water rotate anti-clockwise on left hand bends and clockwise at right hand bends. Promised double wages, they worked through the night, and the adjustments were completed in time for the opening in the morning.

The inauguration of the flume was attended by the Prince and Princess, by the Chief Forestry Commissioner and a number of hydraulic specialists, the last ready to gloat over Viktor's humiliation. After greeting the royal couple and the head forester, he continued:

> I opened the lock, behind which my workers started to arrange the smaller logs in the water. Unnoticed, a heavier log about 3ft (90cm) in diameter went in with the others. The senior log master shouted, 'We cannot have that one.' I gave a quick wave and the unwanted log floated high, towards the outflow. Quickly it created a blockage that raised the water level. No one said anything, staring at the log rising out of the water, waiting for the flume to overflow. Suddenly there was a gurgling noise. The heavy log swung first to the right, then to the left, twisting like a snake, its head high as it floated away quickly. A few seconds later the log slipped through the first curve and was gone.

Schauberger's flumes followed the curves of the valley, with guide vanes mounted on the curves, making the water spiral along its axis. With the careful monitoring of temperature along the route, bringing in cold water where necessary, he found it was possible to float logs under conditions regarded as impossible, using significantly less water, and achieving very high delivery rates. Parts of his flumes can still be seen in Austria today.

The flume at Steyrling was a great success, much to the chagrin of the observing hydraulic engineers who were so sure his crazy scheme would fail. Schauberger's fame quickly spread. Experts came from all over Europe to study the flume's construction. He was appointed State Consultant for Timber Flotation at a high salary. The academics were furious that he could give directives on technical questions which he could not understand with his inadequate education, and that he was paid twice as much as any of them. In the crisis that followed, Viktor resigned, and accepted a job with one of Austria's largest building contractors for whom he built installations all over Europe. If this has been his only accomplishment, Viktor Schauberger would still be known as the man who completely mastered the art of transporting timber by water.

Water, source of life

His painstaking and inspired studies of water were the source for a seminal paper that Schauberger wrote on 'Temperature and the Movement of Water.'[2] Central to these was the influence of minute differences in temperature, which are presently wholly ignored by

modern hydraulics and hydrology. Natural, living, water, which is conventionally regarded as a homogenous substance, he showed to be composed of many strata or layers with subtle variations in temperature and electric charge which influence the water's motion, its form of flow and its physical properties.

Schauberger saw water as a pulsating, living substance that energizes all of life, both organic and inorganic. He called it 'the life blood of the Earth.' Whether as water, blood or sap (which are essentially water), it is the indispensable constituent of all life-forms, and its quality and temperature is fundamental to health. When it is healthy it has a complex structure that enables it to communicate information, carry energy, nutrients and healing, to self-cleanse and discharge wastes. He believed that one of the causes of the disintegration of our culture is our disrespect for and destruction of water, *the bringer of life*, for in doing so we destroy life itself. Viktor also profoundly believed that our dangerous technologies produce poor water that has lost its energy and its ability to pulsate — and is effectively *lifeless*. This dead water produces inadequate nutrition, and Viktor believed that its regressive energies are responsible for degenerative diseases like cancer, for lower intelligence and for community turmoil.

Natural forests (not the monoculture plantations of today) are the cradle of water and also the main source of oxygen for the planet. Their precipitate destruction, Schauberger predicted, would result in global warming, severe water shortage and the creation of deserts. He made brilliant observations of the way in which trees in a natural, diversified environment are biocondensers of energy (accumulating and storing energy from both Sun and Earth) — how the groundwater (man permitting) brings Earth's energy to the tree in order to balance the Sun's energy.

Motion is crucial

An understanding of motion may be the most important of Schauberger's discoveries. Our current technology uses the wrong form of motion. Our machines and processes channel agents such as air, water, other liquids and gases into the type of motion that Nature uses only to decompose and dissolve matter. Nature uses another form of motion for creating and rebuilding. Our technology's mode of motion creates chaos, noise and

heat, bringing disease to organisms and the breakdown of structures. Visualize if you will, what happens in an explosion — matter is torn apart, fragmented and destroyed. Its effect is to create degraded energy. Through its dependence on the decomposing mode of motion our technology creates enormous energy pollution and entropy, dangerously affecting the vital biodiversity and balance of our ecosystems.

Our mechanical, technological systems of motion are nearly all heat- and friction-inducing, with the fastest movement at the periphery (as in a wheel), a form of motion that is disintegrative, noisy and inefficient; this is the way we generate our power — centrifugally. By contrast, Nature uses the opposite, centripetal, vortical form of motion, moving from the outside to the inside with increasing velocity, which acts to cool, to condense, to structure, assisting the emergence of higher quality and more complex systems.

Spirals are a basic form of motion in Nature, but Schauberger's recognition of the *vortex* (see Chapter 2) as the principal creative movement system in the Universe is at the core of his Eco-technology and the key to his valuable implosion research. From the tornado to plant growth, it is Nature's mechanism for transforming energy from one level to another (Fig. 1.2).

Asked about our technology 'How else should it be done?' Viktor's answer was: 'Exactly in the opposite way that it is done today.' He saw that the potential for creating energy for human needs by replicating the in-winding motion of Nature was the way of the future.

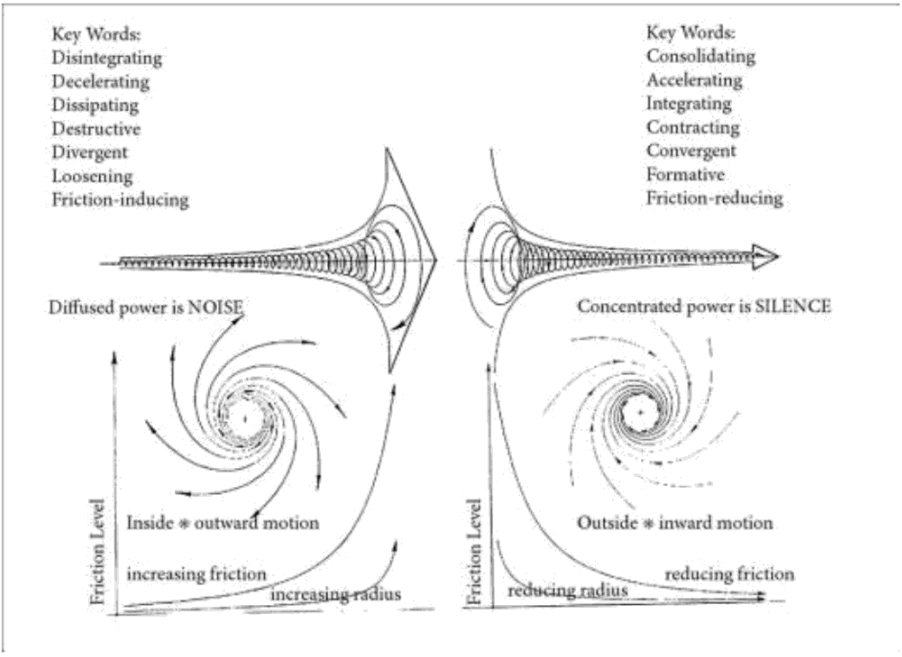

Fig. 1.2. Centrifugal and centripetal movement.
Comparison between axial>radial (inside>outwards) motion, the way our current technology works, and radial>axial (outside>inwards) motion, Nature's way of generating creative energy.

Temperature controls

Another cornerstone of Viktor's ecotechnology is the importance of temperature in Nature's processes. Modern technology creates vast amounts of waste heat (entropy) which contribute to global warming, especially in cities and industrial centres (carbon dioxide from burning fossil fuels being the principal source of global warming). Increasing heat will ultimately destroy life on Earth. Nature's creativity, however, thrives on measured coolness.

Most significantly, he showed how small variations in temperature are as crucial to the healthy movement of water and sap as they are to the human blood. He identified in particular the importance for water of the temperature of +4°C (39°F), referred to physically and chemically as the 'anomaly point,' when water is at its densest and has the greatest vitality, health and energy content.

In all forms of water, in trees and other living organisms, the

temperature gradient (the upward and downward movement of temperature) is active. In the natural process of synthesis and decomposition, the temperature is either approaching (positive gradient) or moving away from (negative gradient) the anomaly point. Each form of gradient has its special function in Nature's great production; the positive (cooling) temperature gradient must play the principal role if evolution is to unfold creatively. We shall be looking at this in more detail in the appropriate chapters.

Schauberger found that temperature changes according to certain patterns and cycles that activate life and death, bringing increase and decrease, decomposition and renewal. Temperature controls the innate energies that produce the pulsations that punctuate and control all life's processes. These energy pulsations which at one moment dissociate or disconnect, and at another recombine both energy and matter, are the mechanism for creating the countless individualities and qualities that make up life as we know it. Viktor said that the cyclical change of temperature creates the conditions suitable for the evolution of new individual life forms or the renewal of existing ones.

Evolution

Viktor Schauberger recognized that Nature's evolutionary purpose is to facilitate the emergence of higher life forms, to promote greater complexity of interrelationships and to raise the level of consciousness of the higher life forms, all a consequence of the continual refinement of energies.

Viktor showed that highly ordered systems lose their stability when their environment suffers deterioration. He predicted that a decrease of biodiversity in Nature would bring an increase in violence and a degeneration of spiritual qualities in the human community.

We think of evolution in terms of technological development. But if one aspect of potentiality is developed at the expense of the others, you end up with an unbalanced person, or even with a monster. This is one of the most important lessons our culture has to learn. It might well apply to the unregulated biotechnology industry. What level of crisis will be required to force us to rethink our priorities and change direction?

Balance

Perhaps the most important of Schauberger's insights that we have to heed is the importance of balance in Nature. The nature of some attribute of an organism, its wholeness or unity, is composed of two seemingly opposed qualities in resonant balance. Thus, for example, both egoism and altruism are necessary as human qualities, but for evolution to proceed, altruism must be more in the ascendant. Because our culture has emphasized the coarser qualities, our creative evolution has been arrested, and we have attracted the darker energies of degeneration, with increasing disorder and violence as the outcome.

All the qualities found in Nature have a coarser physical aspect that our worldview attracts, to the discouragement of higher, more subtle energies; we shall be looking at how this impinges on the environment as a whole. In this way Nature's balance is upset, the most obvious being the supremacy today of the more aggressive energies of humankind.

Implosion

Nature's methods of producing energy are silent, but inherently far more effective and powerful than our mechanical techniques, as Schauberger was to prove with his implosion machines that produced prodigious amounts of power. The difference between the two forms of energy production is fundamental to the quality of any process in our world.

Not only does this implosion technology produce much more energy than the 'explosive' methods currently employed, but it creates no waste, pollution, global warming or other damage to Earth's fragile ecosystems. Schauberger invented a number of 'over-unity' machines that produced a substantial excess of power over input. These included means of propulsion for aircraft, submarines, and cars; different devices that produced power, coolness or heat for the home, and invaluable machines for making high quality springwater from polluted water. Unfortunately the working models were destroyed at the end of the Second World War, and his detailed drawings are missing.

His descriptions of these appliances have inspired a number of inventors searching for 'free energy' generation. It seems that no-one has quite succeeded in replicating one of Viktor's, but there are some promising devices ready to go into production. The main obstacles to their introduction include personal harassment from agents of the energy 'establishment,' the lack of imagination by politicians and investors, and

the vested interests of the fossil fuel industries, whose lobbying of government is bent on delaying as long as possible the day when people will be able to gain their true independence by producing cheaply their own power needs at home, as Schauberger envisaged.

The visionary

What we have to take on board, as it were, is the extent to which the degraded energies of our present technologies are polluting the world, both from excess heat, but more particularly because they not only block or impede the natural productive and healing energies, but actually encourage degeneration. We can reduce global warming by significant reductions in CO_2 emissions. But we cannot hope for the long-term survival of humanity without ditching our current technology models for those that are wholeheartedly Nature-friendly. Schauberger shows us the way ahead. For example, ecotechnologies are being introduced into the fragile Himalayan ecosystems of Ladakh, as a means of securing economic self-sufficiency for a proud people who are losing their independence in the face of imposed economic exploitation from outside.[3]

Viktor Schauberger came from a background that was rare even a century ago. Several generations of his family had lived in the unspoilt Alpine forests. They understood many of Nature's laws. Viktor's refusal to go to college came from a fear of being indoctrinated, as he believed he would lose both his intuition and his ability to see the magical interconnections within Nature. His natural ability voluntarily to change levels of awareness was the key to his singular discoveries of how Nature works. He was able to enter a more refined state of consciousness, as when he describes how he let his awareness enter the flowing water in a stream, ready to bring back intuitions of what the water required for its health.

This book is *not* about going back to some romantic past, or about discarding science as a discipline, or technology as a means of making our lives more effective. It is about, as Schauberger used to say, 'thinking an octave higher.' Viktor was a supremely capable scientist, an impeccable observer, a thorough researcher and an inspired inventor. He also predicted, seventy years ago, the climate change disasters that we are now experiencing, and the moral and spiritual collapse of our

civilization. But he also, supremely, gave us the keys to reclaiming our heritage as true guardians of Nature and, as we shall see, showed us how to repair the damage we have done to our precious Earth.

Notes

1. The Schauberger Archives.
2. Published in *Die Wasserwirtschaft*, 20, 1930.
3. *Ancient Futures: Learning from Ladakh*, by Helen Norberg-Hodge.

2. Different Kinds of Energy

Subtle energies

In the last 200 years, the application of increasingly complex technologies has accelerated enormously, overwhelming the far more subtle energy systems of Nature, with dire consequences for us all. For while some will argue that these have brought benefits to many on the material level, the quality of life on the planet has seriously deteriorated, with severe damage to ecosystems and to biodiversity.

No one explains, as convincingly as Schauberger, just how this has come about. He found that the energy our technology propagates is destructive of the evolutionary impulse in life forms, precipitating a downward spiral in the quality of organisms, and in the human quality of life. Imagine trying to be creative in a steel mill or a slaughterhouse! The pride we hold for our Machiavellian machines that pour out incessant noise and heat is based on the mistaken belief that we represent the summit of evolution.

Schauberger pointed out that, besides having the ego-centred need to control, modern science sees only the surface of things.[1] Its reductionist (everything in separate compartments) and materialistic agenda prevents an understanding of the energetic processes which, as Schauberger demonstrated, are essential for any material substance to come into being; in the same way that an idea or impulse must precede any human action. These subtle energies are essential to the increasing quality Nature demands in her evolutionary process. When these are subdued, only deterioration can result, which inevitably also affects human aspirations. So energy is cause, form is effect. An understanding of any creative process is impossible without true awareness of subtle energies.

Schauberger's worldview

Viktor Schauberger took the ancients' view of the Sun as the male inseminator of Earth to create bountiful Nature. But, also like the ancients, he saw Nature as the mirror of the Divine. Following Goethe's

eighteenth century view, he conceived of God as a kind of 'Divine Weaver' of the unfolding tapestry of Evolution. It was through this vision that Viktor found common ground also with the Austrian philosopher Rudolf Steiner.

However, he saw the Earth and Nature also as part of a much larger cosmos. The visible Sun is but the kernel, the only visible part, of a much larger sun that, with its radiative body, stretches to the very limits of the solar system. The Earth is within this sun, bathed by the solar wind, spiraling with its sister planets like organs within the same body. Our own bodies too are but kernels of a much broader, invisible self that extends around us, and with which we can feel another's energy.

He was influenced by Theosophical thinking that conceives the Universe as a holistic system, and criticized contemporary thinking that cannot accept our subservience to Nature; he said that this limitation of awareness prevents us accepting our place in the Universe, of which the consciousness we call Nature is a part. This holistic view of all creation is aided by the idea of a hierarchy of energies, from the very finest that are inconceivable to humans, down to the coarse, material energies which dominate contemporary society. Schauberger would refer to these different levels as 'octaves,' but we shall describe them as 'dimensions' or domains.

Why the mystery?

His scientific contemporaries misunderstood Viktor Schauberger because his frame of reference was the subtle energies in Nature, and they hadn't a clue what he was on about. His heightened sensitivities enabled him to be aware of phenomena more subtle than most of us are able to perceive. As this was his *modus operandi*, we need to take a look at this whole question of energies.

Firstly, we need to accept that the worldview of our contemporary culture is that of the material world; that is its reference point. We don't learn about energies at school or at college, other than the purely mechanical or electrical. Any phenomenon that is nonmaterial poses a difficulty for conventional science, for it cannot be described in a manner that is familiar to its discipline. Thoughts and emotions are energies we all experience, but how do we study them in the laboratory, other than their physical effects?

The various forms of effective energy medicine such as acupuncture, homeopathy, cranial osteopathy (and others) are not understood by orthodox medicine and, for that reason, are generally dismissed and usually opposed. It is not sufficient to see that acupuncture works; or that most people are intuitive. If you can't explain it, then modern knowledge says it must be bogus. We are not talking about religion, beliefs or values, but about things that actually happen on a nonmaterial level.

Earlier cultures acknowledged the tremendous power of immaterial life-energies. The life force (*Ch'i*) that moves along the energy meridians in the human body was recognized by the Chinese several thousand years ago. To correct bioenergetic imbalances or blockages in the body, they developed acupuncture at that time, a treatment still widely used in China and now also in many Western countries by accredited practitioners and by some more open-minded physicians.

While the life sciences, for the most part, are still imprisoned in the mechanistic view of life, the physical sciences are undergoing a revolution. The study of sub-atomic phenomena has led to the development of quantum physics, in which the environment becomes unpredictable. The boundaries between energy and matter become blurred, so that the smallest constituents of matter — particles and electrons — are interchangeable. Matter becomes energy, which leads to the conclusion that everything is energy.[2] Sadly the rigid boundaries that have developed between different scientific disciplines have as yet denied these insights to the life sciences and to medicine.

As there is nowhere intellectually respectable to slot in these 'anomalous' phenomena, new labels have to be found, like 'energy medicine' or 'alternative science.' Schauberger was a pioneer of alternative science, which pushes the boundaries of what is worthy of study beyond the merely physical.

Degrees of energy

We know the ways in which energy manifests itself. We can see that flowing water is energetic. We can see that energy is associated with creating clouds. Energy is active in an engine combusting gasoline or petrol. But what is its essence, a process that always seems to be connected with movement?

When we look up at the fluffy clouds on a summer's day, we may

wonder what they're made of. So wispy and light, each cloud may contain hundreds or thousands of tons of tiny individual droplets of water, invisible and in constant motion. A collection of minute, invisible, weightless things becomes large and visible. It's a question of density. Our entire universe forms in the same way.

A material object consists of billions of atoms, each composed of sub-atomic particles, each of which is a vortex of energy. Gyrating around each other in vortices, the sub-atomic particles form heavier particles of energy that become denser, eventually slowing down to the point where they may become visible or even tangible.

Water is a substance that appears in different forms according to its compactness. In its solid state, as ice, its atomic particles move the most slowly. As the ice melts, they move faster, need more space to gyrate or vibrate, creating the less dense form, liquid water. Heated up, the particles accelerate, requiring more space, and become steam or the invisible gas, water vapour. Their state and appearance differ, depending on their expression of energy as movement or vibration, and its rate of motion is called its frequency. The principles of vibration and frequency determine the countless energy forms in our world.

The material substance we see is the result of energy setting up a visible 'blur' by vibrating in and out of a physical state, with a frequency and density that makes it seem like a static whole. The forms create an illusion of being solid and static, caused by countless particles constantly accelerating and then slowing down enough for us to see them as matter. When you see that all material objects are composed of atoms and particles in constant motion, it becomes possible to understand that *everything is energy*.

The vortex as the key to creative evolution

The vortex is a window between different qualities or levels of energy. Black Holes can be thought of as vortices linking different parts of our universe or even different universes. The vortex and spiral became hallmarks for Viktor Schauberger, as for him they were the key to all creative movement. As we shall demonstrate later, the vortex is most clearly seen with water, which it uses to purify and energize itself, introducing finer energies to wipe clean the bad energies of the water's previous memory of misuse.

One could use the metaphor of a musty room that feels stale and unwelcoming. Once sunlight and fresh air are allowed to penetrate, the unpleasant atmosphere is quickly transformed. It is a natural law that the more refined energy always prevails over the coarser.[3] As Viktor Schauberger demonstrated, Nature's evolutionary imperative is continually to refine and to create greater complexity and diversity, the vortex being the key process in this endeavour.

Energies as creative process

We normally think of energy as the power to do work, as to be able to run across a busy street. But thought is also energy. For the human, creativity is dependent on thought. Between having an idea and our wish to see it fulfilled lies a complex creative process.

If I want to make an apple pie, there is first the idea, then the planning, translating this through visualization and then finally the physical creation of the pie. This is much more important than we realize. From the simplest task like tying your shoelace, to the complex challenge of becoming a tennis champion, the better the 'mind pictures' of how we are going to perform the required actions, the more successful will be the outcome. The force, the impulse, which is the motivator for us to create, is an unseen energetic process.

Viktor Schauberger shows us that we need to think of energy in Nature as the potential for creation, not as a mechanical working process. He criticized our present view of how Nature works as untenably mechanistic, which he said this is one of the main reasons why we're in such a mess. Our culture thinks of Nature as being like a big machine that can be manipulated and its resources extracted for our own greed, rather than a creative system that has a purpose.

Productive energies make it possible for life forms to arise that are appropriate to the needs of the environment. It is as if Nature has a blueprint for what is required for a balanced and diversified community. For example, a healthy river that is carrying energized water will create on its banks trees that it needs to keep it cool and protect its vitality.

James Lovelock and Lynn Margulis recognized this creativity by naming the Earth 'Gaia' after the classical Earth goddess. They described how the Earth behaves like an organism, and how the conditions for life on our planet are maintained within very narrow limits, in spite of the

enormous variation in the Sun's radiation, and the effect of harmful cosmic rays. This seems to work in a similar way to the self-regulating system in the human body that maintains the blood temperature in the narrow range essential for health (around +37°C/98.4°F). A mechanistic scientist would insist that this is just a computer function, but computers don't operate with purpose and meaning.

Spiritual science

To say that purpose and meaning are more to do with belief or religion is, I believe, a mistaken view. Purpose can be ascribed to living systems. Watch a community of bees at work, and there is a significant purpose! Meaning is usually associated with sentient beings. Being creatively human is difficult without a sense of meaning in one's life. Schauberger didn't talk much about God, but as we shall see he recognized in the extraordinary fecundity of Nature, and indeed in all of her processes, an indisputable sense of meaning and purpose. If it makes more sense to you, call it 'spiritual' science.

It is not necessary to postulate a God that created every living thing and who is behind all the subtle energies in Nature. Probably the idea, found in so many religions, of God as a being like superman whose support can be called on for your little or big power plays is in much the same category as that of regarding Earth's resources as private property for exploitation. The concept of co-creation — that all of creation participates in and contributes to the creative process, is often more acceptable to the thoughtful searcher.

We are clearly influenced by the beliefs of the culture into which we are born. The worldview of contemporary Western society represents an enormous shift away from what has been the norm of human experience over its half million or so years on the Earth. The clearest modern examples of a more 'normal' worldview are the Buddhist beliefs, the Celtic, and those of the indigenous peoples worldwide who share the idea that the Great Spirit (or God) inspires and inhabits the rocks, the waters, and all living things.

In our detachment from the complete or 'real' world, we assume that it is normal to divide different 'bits' of knowledge into separate compartments or 'disciplines.' In fact it is quite abnormal. For traditional peoples, there are no barriers between cosmology, science and the

spiritual, for in the interconnectedness of all Nature there is no separation; all is One.

Different dimensions

Viktor Schauberger didn't write about hierarchies of energy, but we know that he subscribed to Theosophical or Eastern concepts of energies, so we shall give an outline of these in order to understand where he was coming from.

Our physical spacetime dimension contains that spectrum of energy that vibrates at a rate low enough to support material form. This Third Dimension or domain has length, breadth and height, but it also has the three components by which humans may be conscious. These are: the physical, neutral energy through which the material world exists; the emotional, negative energy by which we receive sensory information; and the mental, positive energy by which we project our beliefs and personalities into the world. (NB: The terms negative and positive are used not in a qualitative sense, but more in the electrical sense of polarity.)

Our daily lives demonstrate the differences between these energies. The mental is the most changeable; it is harder to change our feelings, and the dense, physical form is almost impossible to change. If we move into a lower dimension, we lose one aspect of consciousness, and if we move higher, we gain one. Moving from the third to the second dimension, we lose the ability to generate original thought. Moving from the third to the fourth, we add the ability to mould time.[4]

In terms of the pure physicality of our three-dimensional world, our consciousness places and senses each lower dimension as being external to the body, although, paradoxically, it is both within and without, and permeated by the higher one (see Fig. 2.1).[5]

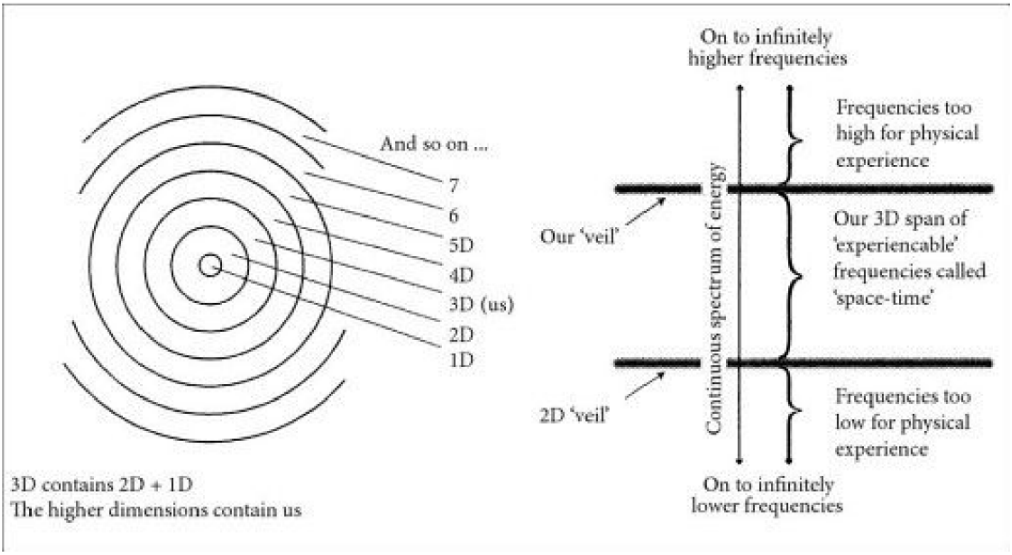

Fig. 2.1. Different dimensions or levels of existence.
Each dimension has a 'veil' at its upper limit which renders higher levels inaccessible. To a lesser extent someone of a 'lower' state of consciousness may be unaware of another in a 'higher state.'

Intuitive or inspired creativity, the level of expanded consciousness sometimes reached by inventors or by people of great vision, belongs to the fifth and sixth dimensions. It is apparent that Viktor Schauberger had the ability to tap into this reservoir of inspiration. All subtle dimensions are present on Earth, interpenetrating the third dimension, though we are not normally conscious of them.[6] The other animals or humans with raised consciousness have a wider range of perception. A close relationship with a dog, cat or horse often reveals instances where the animal is aware of a nonphysical 'presence' which is beyond our own awareness or which may be a spirit presence. If we lower our consciousness, we feel less ability to control our own lives. If all our three components of consciousness are being fully used, then we can experience the full potential of being human, which is the gift of free will.

We shall not discuss in detail here the important energy shifts that are occurring on our planet at this time. In line with the idea that God, or the All-That-Is, seeks constant evolution or expansion of consciousness, ancient teaching has long predicted that the Earth and all its inhabitants would graduate from the third to the fourth dimension in these times.

Human society is becoming increasingly polarized between the materialist-based (third dimension) power structures that are reluctant to release their control, and those who wish to participate in a fairer and more spiritually based society.[7]

Changing octaves

When Viktor Schauberger said, 'We must think an octave higher,' (if we are to get out of this mess), one tends to think he means being less taken in by the physical view of life, and become more aware of its subtle aspects. While that is true, he did propose an interesting way of illustrating the concept of how a particular kind of energy can be taken up one octave. On the face of it, the following may be considered contradictory, but a more interesting view is to see them as complementary or reciprocal energies an octave apart, one a development of the other (like thesis and antithesis), which, when combined are reconciled and become a unity:[8]

lower octave		*higher octave*	
Matter	x	Spirit	= *unity*
Egoism	x	Altruism	*(= unity)*
Analysis	x	Synthesis	*(= unity)*
Heat	x	Cold	*(= unity)*
Gravitation	x	Levitation	*(= unity)*
Electricity	x	Magnetism	*(= unity)*
Bioelectricism	x	Biomagnetism	*(= unity)*
Pressure	x	Suction	*(= unity)*
Expansion	x	Impansion	*(= unity)*
Centrifugence	x	Centripetence	*(= unity)*
Oxygen	x	Carbones	*(= unity*)
Yang	x	Yin	*(= unity)*

The second column, the 'antitheses,' being more refined, have the potential to contribute to creative evolution by being able to bridge the gap between the idea and manifestation. They are, if you like, endowed with special vibrational energies and powers.

Callum Coats, in translating some of these more difficult concepts from Viktor's German terms, coined his own to describe the different

forms of subtle energies from the fourth and fifth dimensions, which collectively he called ‘ethericities.’ By these he meant the bioelectric, biomagnetic, catalytic, high-frequency, vibratory, super-potent elements of quasi-material qualities:

> These ethericities are further categorized as ‘fructigens,’ ‘qualigens’ and ‘dynagens.’ They respectively represent those subtle energies whose function is the enhancement of fruitfulness (fructigens), the generation of quality (qualigens) and the amplification of immaterial energy (dynagens). According to their function or location these may be female or male in nature. There are thus female fructigens and male dynagens, for example.[9]

We shall be using these terms from time to time where they are helpful.

Notes

1. A few years ago, it was established by precise calculation that the bumblebee’s body weight prohibits it from flying, according to the laws of aerodynamics. (Just as well the humble bee wasn’t told.) Clearly there is much that conventional science does not understand about Nature!
2. Teilhard de Chardin, priest-scientist, was the first to propose this, in answer to his ongoing question: ‘How can the two realms of our experience, the outer and inner worlds, be reconciled?’ David Bohm went further, insisting that matter and energy are one and the same. He described two orders, the Explicate Order being what we can measure and to some extent describe; and the Implicate Order which we cannot measure, and in our present state of knowledge and evolution, cannot adequately describe.
3. The implication of this natural law is that compassion will triumph over selfishness, generosity over greed, a law more evident higher up the evolutionary ladder. This outcome may at present look distant, but if we believe that it is meant to be, then our small attempts to make changes should gain the cooperation of all-powerful Nature. This is similar to the Christian belief that God will cooperate if only we take the first steps. Also, see ‘Opposites working towards Balance’ (Chapter 3).
4. The qualities of higher dimensions are: Fourth — Time (control of space/time); Fifth — Presence (outside of space/ time); Sixth — Potential (the creative state which is non-dimensional); Seventh — Gateway to the Divine.
5. These diagrams are from *From Atoms to Angels* by Paul Walsh-Roberts, a very accessible introduction to these concepts.
6. Another important by-product of quantum physics research is the work of US physicist Hugh Everett, who in 1957 observed that when a measurement is performed on a quantum system, all possible outcomes of the measurement actually occur; this contrasts with the conventional view that only one of many possible states is ever observed. His proposal leads to the conclusion that the Universe is constantly dividing to give vast numbers of alternative universes that co-exist, but do not interact with each other, and

that we live in a single one of these many universes.

7. For a good introduction to the dimensional shift and how it will affect us all, see Cori, *The Cosmos of Soul* (details in Bibliography).
8. See further particularly in Chapter 3. Callum Coats calls this resolution of apparently conflicting elements 'dialectic thinking,' by which unity is found (*Living Energies*, pp. 61–64, esp. table p. 63), and quotes Hegel defining this as, 'the process of thought by which such contradictions are seen to merge themselves in a higher truth that comprehends them.'
9. *Living Energies*, p. 74.

3. The Attraction and Repulsion of Opposites

The Sun as a fertilizing entity

We all know that sexual reproduction requires insemination of the female by the male but, according to Viktor Schauberger, the Earth works on the same principle. From Nature's point of view, this starts with the Sun. Throughout nearly all of humanity's time on this planet, the Earth has been regarded a sacred being, the Great Mother. The Sun held an equally significant place in our forebears' worldview. Most of the ancient cultures regarded the Sun as the primary, masculine deity, fertilizing the Earth in order to create life. The eighteenth century thinker, Johann Wolfgang von Goethe referred to Earth's creative spirit as the 'Eternally Female' and the 'All-uplifting' (or levitating).

Viktor Schauberger uses explicit sexual terms to explain this vital natural process. He talks of the Sun impregnating Mother Earth in order to create the incalculable number of different life-forms that inhabit this planet. The Sun behaves very much as a living body. It is known to pulsate rhythmically, its surface expanding and contracting 3km (1.8 miles) every 160 minutes. Its life-giving energies warm the atmosphere and penetrate deep into the ground to inseminate the elements and substances of the Earth (the sleeping princess). The beneficial UVc rays[1] which the ozone layer allows through, have to decelerate in order to unite with the receptive and passive female energies rising inside the Earth; these slower energies have to accelerate, for fertilization can take place only if the two resonate with a sympathetic rate of vibration (see Chapter 4).

All of life, from the gross material to the ethereally subtle, evolves through the interaction of male and female, positive and negative, energies. Each polarity has a particular manner of expression, the downwardly-radiating solar energy meeting the Earth at right angles to the energies of the Earth ranged in a layer below the surface (see Fig. 3.1). Their properties and potentialities are opposite, but complementary, to each other. The manner in which these polarized energies interact alternate between attraction and repulsion, which sets up a pulsation

which will vary according to the season.

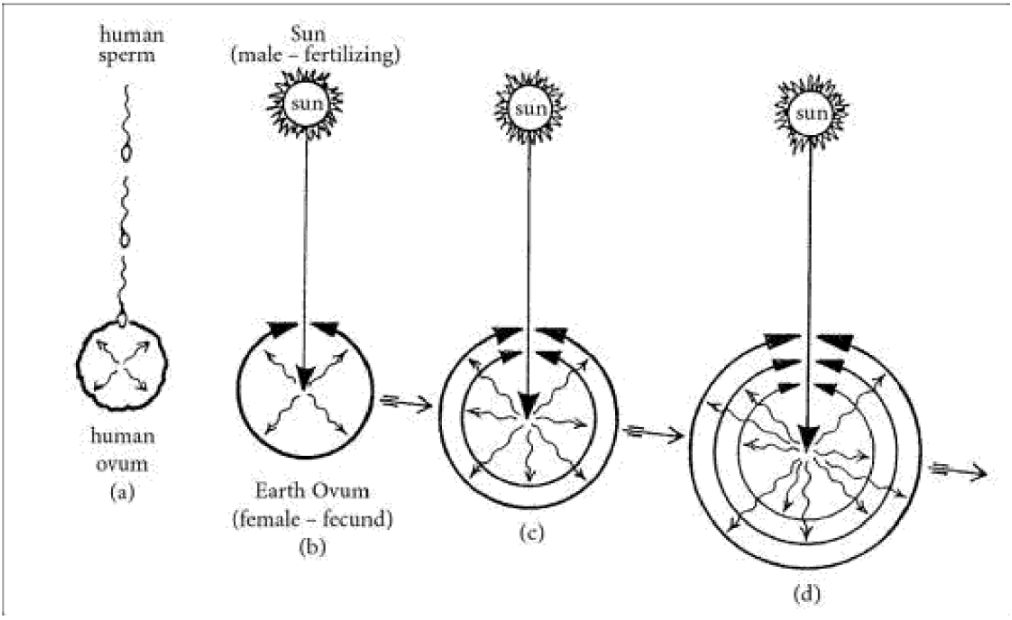

Fig. 3.1. Cosmic fertilization.
Schauberger saw the fertilization of Earth by the Sun as a similar process to human fertilization. The Earth responds to the Sun's energy by releasing propagating energies (the concentric circles) which become more developed and complex as evolution proceeds.

In winter when the Sun's energy has the most blue and ultraviolet light and the Earth is passive, with low temperatures in the cold winter sunlight, the vegetation is dormant and much animal life hibernates. It is then that fertilization, reproduction and growth are at a minimum, but the solar energies continue to penetrate deep into the Earth to awaken the embryonic female energies lying far below the surface. This union produces the prolific growth of springtime.

In spring and summer however, when the Sun's radiation becomes relatively stronger, the balance between the ultraviolet and the infrared shifts towards the red end of the spectrum. This awakens the Earth, whose energy interacts with the Sun's high-frequency energy, producing a third kind of energy, which is dynamic growth. Viktor Schauberger saw this as the discharged precipitates of higher, bipolar subtle energy. In the summer months the solar energies fuse with their female opposites in the higher strata near the surface of the Earth. This repeated process of impregnation results in an almost continuous flow of fertile energies

emanating from deep in the Earth to stimulate burgeoning growth.

Viktor grouped almost all the known elements and their compounds, with the exception of oxygen and hydrogen, under the general classification of ‘female.’ The exceptions were silver, zinc and silicon, which were considered to have paternally-oriented characteristics, while gold, copper and limestone were regarded as more maternal (these will be discussed in more detail in Chapter 17). Schauberger used the term ‘carbones’ for all these elements, (the extra ‘e’ meaning more than just ‘carbon’), because of the prevalence of various sorts of carbonous matter in the multitude of living organisms created in the body of Mother Earth.

The Sun’s energy, of course, is regarded as male, and Viktor saw oxygen as a lower form of solar energy. Together, the role of the Sun and its assistant oxygen is to fertilize these female, propagative energies, the Sun being responsible for all of life, and oxygen for organic growth and development. To hydrogen, Viktor gave a special role, as the carrier substance of both oxygen and carbone (see Fig. 3.2). From a detached view, far outside the atmosphere, our planet, composed of carbones and fertilized by oxygen, is indeed floating in the hydrogen gas ocean of space.

Fig. 3.2. Hydrogen symbol.
Hydrogen as the ‘carrier’ of both carbone and oxygen.

The words ‘matter’ and ‘material,’ both have their root in the Latin word *mater*, meaning mother, which supports the idea that physical substance is feminine in nature. Thus all the physical elements (except for oxygen and hydrogen) can be seen as the maternal progenitive constituents of ‘Mother-Earth.’ Viktor Schauberger visualized all physical structures and all new living entities coming into being through the union between these ‘mother-substances’ and the inseminating agent of oxygen.

Polarities

Viktor Schauberger used to call polarity Nature's engine. He once described the harmonious interplay of the attraction and repulsion of polarized atoms as 'the dance of creation.' Electricity depends on the positive and negative charge of electrons. Magnetism expresses the polarities of attraction and repulsion. Polarities also apply in biological terms, of course, where balance is achieved between contrasting qualities, and of course between different sexes.

Without the attraction and repulsion of atoms there would be no water, no plants, nor chemical compounds. The mutual attraction of 2 x H and 1 x O gives birth to the marvel of water.

We are more familiar with the terms 'positive' and 'negative' than 'male' and 'female' in scientific contexts; as, for example, with electricity. Of course, positive and negative in this sense are not judgmental terms, but opposite poles. Schauberger felt that to use the terms masculine and feminine was more in keeping with Nature, which he saw as a living organic system.

Opposites working towards balance

We tend to think of Nature as being chaotic. The reverse is true. Schauberger discovered that Nature operates according to very strict laws. One of the most important is that concerned with the balance between energy polarities, each of which has its particular manner of expression. Masculine and feminine together make up a complete human being; one cannot exist without the other, and each needs the other to be whole. You might think that to be in balance, masculine and feminine energies need to be about 50/50, as they nearly are with the distribution of the human sexes.

For the last three thousand years or so human society has functioned in a predominantly masculine mode and is now quite out of balance. If you consider masculine energy to be represented by rationality, concern with the physical, forceful, expansive and individualistic; and the feminine by a tendency to be inclusive, intuitive, connecting and compassionate — then most will agree we need a swing of the pendulum towards the latter.

The natural law about balance is that it must be weighted towards the

feminine for creative growth to proceed. Otherwise growth (in terms of higher quality) is arrested, and degeneration takes place. This applies to all the qualities, like:

matter and energy or spirit
chaos and order
yang and yin
positive and negative (not in judgmental terms, more electrical)
egoism and altruism
quantity and quality (a confusion of our present society)

And then in the more technical areas of life-building energies which we will cover in the relevant chapters:

gravitation and levitation
electricity and magnetism
oxygen and carbones
centrifugence and centripetence
negative temperature gradient and positive temperate gradient

What is the correct proportion by which the negative should dominate? Ancient Chinese society was very much taken up with these questions, and they believed the ratio of the correct balance was three-fifths (60%) to two-fifths (40%). Viktor Schauberger, who worked very intuitively, particularly on the temperature gradients in water, came up with two-thirds to one-third (66.7%). Callum Coats, who worked with Viktor's son Walter, a mathematician and physicist, related the proportion to the sacred geometric ratio of ϕ (*phi*) which is 1.618, which gives the negative share of 61.8%.

The interaction and combination of opposites is found throughout all natural processes. It is true of heat and cold. The crucial interplay of heat and cold is found in many life-forms. Some types of fruit and seeds cannot germinate properly unless they have been exposed to frost. Brussels sprouts are best after the first frost! Growth is dependent on the right combination of heat and cold.

There is, however, no such thing as stable equilibrium, which would bring immobility and uniformity with which evolution would be impossible. Development and evolution in the dynamic Universe depend on an inherent imbalance, since movement is always occurring

somewhere between one extreme and the other.

Gravity and levity

Gravity is recognized as a powerful physical force in the Cosmos. However, Viktor Schauberger demonstrated that its opposite, levity, is tremendously important in Nature. That levity is not acknowledged by conventional science presumably has to do with its being one of these more subtle energies which are anathema to the reductionist mindset. Without levitation, fish would have great difficulty swimming upstream in a strong current, and we would not have majestic trees reaching for the heavens; only ground-hugging species.[2] Levitation force may indeed be related to these female subtle energies spiralling upwards to the Earth's surface in their desire for fertilization.

Levitation has much greater potential power than gravity, much as suction does over pressure. Schauberger used this to great effect in his implosion machines, as we shall see later. Levitation can best be described as the life-force present in all healthy living things, particularly the more youthful, which gives a feeling of lightness and of relative weightlessness. It gradually weakens with age, so that the elderly become conscious of the weight of their bodies and the greater difficulty of movement. When this levitational force withdraws, so too does the life-force of the body.

Notes

1. The ozone layer filters out the harmful ultra-violet rays known as UVa and UVb. The UVc, which have a different wavelength, are allowed through, and play a large part in the growth of organisms (for instance, helping to build healthy bones).
2. Viktor Schauberger once commented wryly that instead of asking himself what caused the apple to fall to the ground, Sir Isaac Newton should have asked how it got up there in the first place!

4. Nature’s Patterns and Shapes

The essence of the Gaia principle is that all life is interconnected. Nature is a conscious system in which all phenomena or happenings affect everything in their environment — the micro-environment for a small incident, or the whole world in the case of a major event. Life forms in Nature respond to each other by means of resonance; you might call it ‘Gaia’s glue.’ When you say someone has ‘good’ or ‘bad vibes,’ you’re talking the language of resonance; flowers attracting insects by their colour and scent, our response to certain kinds of music, the practice of *feng shui* in the home; monks chanting, bees humming.

Resonance is the language of communication and response. It is how energetic information is transferred from one object to another. It is also the mechanism of harmony. For example, the organs and cells in the human body vibrate each at its specific frequency, and in the healthy body they resonate in harmony like the different instruments of an orchestra. Water, as the principal constituent of and the bringer of life to all organisms, is the most powerful carrier of resonance.

Sound as resonance

Every musician knows that a tuning fork of the note C struck in a concert hall will make any number of C tuning forks respond in the same space. When you rub your finger round the rim of a wine glass, its note will sound. If a singer finds this note, the glass will resonate in sympathy, or even shatter if the vibration becomes too strong.

Sound is probably the most ancient form of resonance in the human experience. Jericho was reputedly destroyed by destructive sound resonances. There are accounts in oral traditions of how early societies, such as the ancient Egyptian, the Tibetan and the Inca employed the use of sound to levitate enormous blocks of stone used in their buildings. Music itself is more than a paradigm of Nature’s resonances. For millennia people have sung and played music to their crops, their lovers and their children. Schauberger describes how the Alpine farmers while stirring the fertilizing liquid would sing into it.

Callum Coats cites:

> Research carried out by Dr John Diamond in the field of behavioral kinesiology (BK), yields some interesting insights.[1] A member of the International Academy of Preventive Medicine, Dr Diamond found that while the deltoid muscle of a healthy adult male can normally resist a force of 40–45lbs, its strength is reduced to 10–15lbs through the negative effect of certain types of rock music, such as heavy metal and hard rock.[2]
>
> In contrast to a more natural rhythm, where the beat emulates that of the heart, with emphasis on the first beat, i.e. DA-da-da or 'LUB dup rest,' as he puts it, in the above type of music this emphasis is reversed, i.e. da-da-DA, which conflicts with the body's natural pulsation and in poetry is known as an 'anapestic beat.' As Dr.Diamond states: 'one of the characteristics of the anapestic beat is that it is stopped at the end of each bar or measure. Rock music that has this weakening effect appears to have this stopped quality; it is as if the music stops and then has to start again, and the listener subconsciously "comes to a halt" at the end of each measure. The anapestic beat is the opposite of the dactylic or waltz like beat, which is DA-da-da, and in which there is an even flow.'[3]

Dr Diamond further asserts that:

> these forms of music and unnatural rhythms cause switching in the brain's responses, which induces 'subtle perceptual difficulties' that may well manifest themselves in children as decreased performance in school, hyperactivity and restlessness; in adults as decreased work output, increased errors, general inefficiency, reduced decision-making capacity on the job, … in short, the loss of energy, for no apparent reason.

Thus a given physical structure is created by an idea dependent on a particular frequency level or pattern of vibrations or resonances, higher vibrations producing higher forms and vice versa.

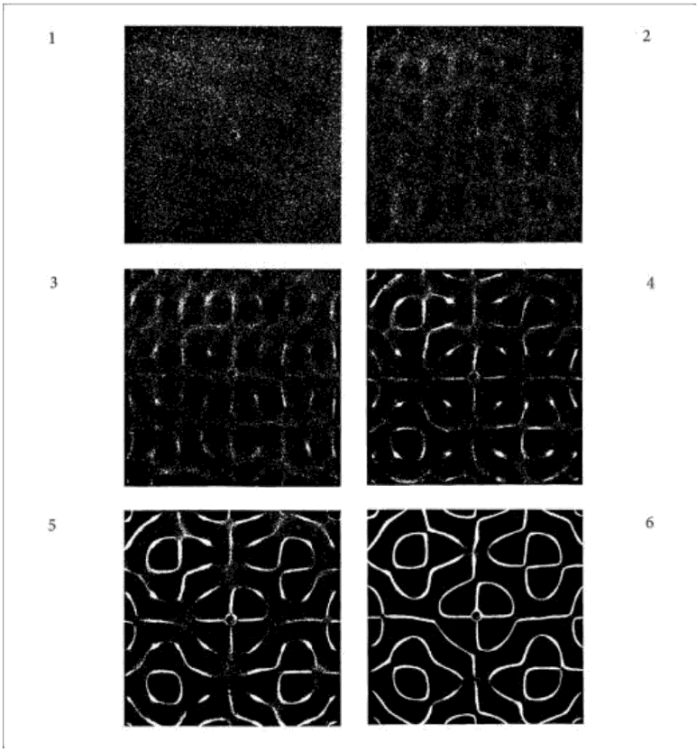

Fig. 4.1. Sonorous figure.
The photographs show a simple sonorous figure taking shape under the action of crystal oscillators. Steel plate 31 x 31 cm; thickness 0.5 mm; frequency 7560cps. The material scattered on the plate is calcined sand.

As we survey the world around us today this is precisely what appears to be happening — the quantitative thrust of our technology and ideology is pressing downwards towards uniformity, to a vibrationless state, which is equivalent to zero energy and quality (see Fig. 5.1). Thus species after species is disappearing simply because the prevailing creative energy pool available for qualitative evolution is absent. If we may imagine that all that can be preserved is what remains, we forget that Nature has her own urge to proceed with evolution.

What is required of us is to purge our technology's production of so much debased energy. This would create positive feedback into human consciousness, raising its level, which would produce an outflow of positive, creatively potentiated energy, creating a swing towards the negative or feminine in society (see Chapter 3).

An urgent swing from carbon-based energy production to renewable sources is vital if global warming is gradually to level off. Schauberger believed that this would help restore the energy balance towards Nature's need for dynamic evolution. But it is not the whole answer; only a radical change of consciousness so that we recognize our sacred role as part of Nature and begin to follow her laws can bring about a new way ahead for Nature and the planet.

Resonance is about qualities

As we saw in Chapter 2, all matter, though it may look solid and stationary, is based on sub-atomic particles that are always in motion.[4] The velocity of this motion determines its vibratory rate; this and the type and size of the object contribute to its vibrational frequency. A piece of wood, and each of the organs in our bodies have different resonant frequencies; planet Earth has its own — a frequency of 7.83Hz (Hertz). Every thing, both animate and apparently inanimate has its own vibrational or resonant frequency that can be enhanced by sympathetic vibrations, or harmed by destructive.

There is increasing evidence of the harmful effects on human health from the ceaseless bombardment of the body's very sensitive, electrically charged cells by the veritable salad of electromagnetic emissions from high-tension cables, radio, television, radar, microwave transmitters, etc.

A very tragic example of this was publicized by the media in the summer of 2001.[5] The navies of several countries, notably the US and Britain, have developed sonar technology for hunting submarines. This involves using massive blasts of sound up to 230 decibels which have been blamed for several mass killings and strandings of marine mammals, notably in the Bahamas in 2000 when at least seventeen Cuvier's beaked whales are known to have died.

Post mortem examination showed that sonar killed them through resonance, a process in which air bubbles in water can amplify sound waves by up to 25 times. When whales dive the air is forced out of their lungs into the tiny air spaces around the brain. Harmful resonance in these air spaces is believed to cause massive tissue damage and hemorrhaging, so that injuries can occur at much lower sound levels and over a much larger area than is presently acknowledged.

The rules that the US navy scientists follow are based on old-

fashioned physical science which puts the safe noise level below 180 decibels, and the safe distance below 2.2 km (1.4 miles). There is now evidence that resonance effects could injure whales up to 100 km (62 miles) away.

Plants have perception and memory

Cleve Backster was a former CIA interrogator who trained police in the use of the polygraph, or lie detector. One of their techniques was the use of 'threat to wellbeing' to evoke emotionality in suspects. In a spontaneous experiment, he attached the electrodes of the instrument to a plant. In considering what a plant would regard as a threat, he thought of applying a burning match to a leaf. Without even moving, only his thought alone triggered a strong response in the plant.[6]

Subsequent experiments, which were then widely repeated by different researchers, showed that plants are able to communicate or 'resonate' their shocked or pleasurable experiences to one another. Backster describes how he tried to block whatever signals were being passed between plants with a variety of complex screens, without success, suggesting that their signals are outside our electromagnetic spectrum. One of the hazards of this research is that unless the researcher is truly aware of his/her own emotional states, these can confuse the results. Perhaps every scientist who wishes to produce 'objective' results should go on a course to make him/her more aware of their prejudices! There is probably no such thing as truly objective research. (The same could be said for anyone whose work brings them into a role influential with others.)

Backster's best known experiment excluded the human factor. Live brine shrimps were dumped in boiling water automatically at pre-determined intervals, near the plants which reacted 'emotionally' each time the massacre took place. Not only do plants respond as if they had a nervous system, but they also exhibit a capacity for memory. As we shall see later, water also has this memory facility. With specially adapted equipment, 'emotional' reactions have also been monitored from amoebas, blood samples and cell cultures. Experimenting with fertilized eggs, it was found that when one egg was broken others, even in the next room, responded with shock.

Societies with ancient roots still celebrate this knowledge, as in the

kosher quietening rituals, prior to the sacrifice of animals, or in the blessing of crops before they are harvested. This is more than consideration for the sacrifice, for it also recognizes that the food thereby retains higher vibrations and is more beneficial for human consumption.

Cymatics

One of the first to convert vibration into visible form was an eighteenth century German physicist, Ernst Chladni, who found he could influence patterns of sand scattered on a steel disc by playing different notes on a violin. This was developed last century by Hans Jenny of Zurich, using sophisticated equipment with liquids, plastics, metal filings and powders.[7] He then vibrated the discs at ascending pitch, and found that the harmonic patterns that appeared at different pitches formed a variety of organic shapes: spirals of jellyfish turrets, concentric rings of tree growth, tortoise-shell patterns or zebra stripes, pentagonal stars of sea-urchins, hexagonal cells of honeycombs, etc. The higher the frequency, the more complex the pattern. Jenny also produced a stunning film which shows that raising the pitch of sound caused a static pattern to change into a moving one.

All of these were, of course, the same geometric and vortical forms which underlie the ordering of physical matter; thus ‘inorganic’ matter vibrated simply with sound produces ‘organic’ shapes. But what is intriguing is that the sand collects on the ‘dead’ areas of the plate, for the ‘life’ of the pattern is vibrating on the background that is free of sand. The paradox is that the visible expression of energy is the inverse of the actual vibratory pattern, which is invisible. Organic growth and development require harmony. Resonance is the process by which harmony is brought to lower systems which then provide a firm basis upon which higher structures may be built.

One is reminded that the early Christian Gnostics insisted that the physical world is but a shadow or shell of a supreme ordering energy that exists in another dimension. Schauberger also saw the physical form like a discarded mantle or energetic detritus, the creative energy of the fifth dimension having been spent. Callum Coats saw the resonant pattern associated with a life form as the seed bearing the image or idea of what is to be created. He argued that all physical manifestation develops as the product of focused energy from the ‘Will-to-create’ or original ‘Source.’

Patterns and shapes

Patterns are to do with order; with design and structure. Nothing can come into being without a design or template. The patterns in Nature are governed by laws that oral tradition tells were the gift of the gods (perhaps a rationalization of a chicken-and-egg situation!). Holistic or spiritual science sees Nature as a mirror of the original creative impulse in the Universe, a manifestation of the Universal Mind, or The-All-That-Is.

Our science, since the Renaissance, has been searching for immutable Laws that help to explain how the natural world works. Because the territory it observes is limited to the physical, conventional science rejects the idea of a cosmic order that affects the Earth and its inhabitants at a subtle energetic level, which frustrated Schauberger. He demonstrated that a new science that has more in common with ancient wisdom does show how the world is subservient to cosmic laws, creating 'correspondences' between the two orders.

Until comparatively recent times, scientists and philosophers recognized the creative energy of Nature as sacred. They saw the way in which Nature's patterns and its complex interdependences were so often expressed in very specific shapes and numbers as proof of God at work. So they called these correspondences sacred numbers and sacred geometry. It is certainly difficult to explain away the complex mathematical and symbolic patterns in Nature as purely accidental or fortuitous (see Chapter 4).

Patterns in motion

In the beginning was the vortex[8]

All life is motion. Natural movement is not in straight lines, but in spirals, or in spiraling vortices. Spirals are the actual shape of fluid energy evolving order from chaos. Viktor Schauberger saw them as the natural movement of life, from the structure of galaxies down to the atom. The spiral is the most common vehicle for 'correspondences' — as above, so below.

The spiral can develop in a number of different ways: as a vortex, moving upwards or downwards, round in a circle, or doubling back on itself. Whenever there is movement, spirals form, visibly with water; but

gases and even electrical fields express themselves in spirals or doughnuts. Sinews, tissues, blood and bones and so many formations in organic life are spiral in form.[9]

Rhythms within the solar system

The relationship between Earth and Moon can be very subtle. Professor Frank Brown of Northwestern University has shown how the 'biological clocks' that initiate cyclical activities like rat-running, and colour change in fiddler crabs are subject to lunar rhythms. His better known experiment involved the shipment in hermetically sealed containers of oysters from the sea shore at New Haven, Connecticut to Evanston, Illinois, 2000 miles inland. Within a couple of weeks they had adjusted the conspicuous rhythm of opening and closing their shells to the lunar tides that would have existed at Evanston had it been on a sea coast.

The terrestrial environment is teeming with electromagnetic phenomena and their secondary effects, which are demonstrably related to greater events in outer space. Dr Harold Burr of Yale University kept extensive records of the voltage changes measured in holes bored in the trunks of trees. When both ends of a wire were inserted into two holes vertically a yard apart, an electrical current could be detected moving either up or down, at different voltages, in regular cycles that were not related to the Moon's phases, but to some other unidentified non-terrestrial source. His records showed that all trees, even hundreds of miles apart, would simultaneously experience the same changes of the voltage and direction of the current. It is as if the whole family of trees responds to the same electrical rhythm, like a cosmic breathing.[10]

It seems that there are universal laws, not yet fully understood, which guide an organism's growth into predetermined patterns. As the vehicle for creative energy, the spiral is clearly involved in the organic growth of plants and embryos. Buds contain all the concentrated energy of the future plant, and their mathematical analysis can yield clues as to how this formative energy is expressed. Rudolf Steiner, the founder of Anthroposophy, initiated these studies, which have been developed in great detail by the projective mathematician Lawrence Edwards.[11]

Edwards discovered that tree buds expand and contract in a curious rhythm, specific to the species. He applied Steiner's theory that a species often has a particular connection to a planet. Steiner suggested

correspondences between particular trees and flowers and certain planets, for example, the oak with Mars, and the beech with Saturn. The results clearly showed that these bud pulsations are linked to the cycles of particular planets. The Moon on its own had little effect, but when amplified by an alignment with Saturn (for the beech) and to Mars (in the case of the oak), showed unmistakable fortnightly rhythms. There was one beech tree studied that did not show these phenomena. It was found to be growing a few yards from an electricity supply substation!

The confrontation of two geometric systems

Schauberger was at odds with scientific rationalism. He described our prevailing Euclidean geometric system as 'techno-academic.' It is essentially a controlled, closed system whose elements are the point, the straight line, the circle and the ellipse. This system dominates the contemporary worldview and mindset and is incompatible with Nature.

In more traditional communities, the hard, straight lines of structures were often softened with decorative embellishments, such as are still found on the eaves or rooflines in some Alpine villages. In the last century, ornamentation has been stripped away in architectural design and we are left with buildings that present a naked angularity and sterile uniformity (*cf* agricultural monoculture).

Until modern times the Chinese rejected the Euclidean model. Their building designs were informed by geomantic principles that recognized the straight line as the path of the dragon, the personification of destructive energy. This energy could be tamed by making it flow into curves and spirals. The Chinese understood in those days that straight lines fostered disruptive behaviour. Perhaps it is time to consider what a deadening effect the boxes we inhabit may have on our thoughts and emotions; of how our dependence on the straight line may cause us to behave.

Nature's system is non-Euclidean, open and dynamic; its elements are open spirals forms, shell, egg and vortical forms. This facilitates a fluid and adaptable environment, one in which forms are able to evolve into more complex and creative arrangements. Other creatures, whose sensitivity is nourished by the subtle energies of open forms, make use of roundness and curves in their nests, burrows, and shells. In order to arrest the downward spiral of our culture, we must take note of systems that

encourage creative change (see Fig. 5.1). Schauberger wished that we could remember that we were created as part of the organic processes of Nature, rather than the mechanical processes that we have adopted.

Sacred geometry

Viktor Schauberger saw patterns and rhythms as the heartbeat of the Universe, and was fascinated by the traditional use of the language of number and form to codify how they are repeated and in what form. It is hard for us, schooled in a rationalist worldview which separates form from the natural order to see that they are part of one whole. The ancients regarded mathematics and geometry as the tools to understand patterns in Nature and in the Universe. The religious leaders of old, who were also the scientists and mathematicians, did not make our mistake of putting different phenomena in separate compartments. To them, the world of matter and reason and the world of spirit and the awareness of God were all one. In the context of myth and symbol, they used numbers and forms in a way that would satisfy the spiritual sense of meaning and the scientific need for structure and reason. Out of this process arose the traditions of numerology and sacred geometry.

In all the ancient cultures, the square symbolized the Earth of matter and rationalization, and the circle the encompassing world of spirit and feeling. How to bring them into balance was called ‘squaring the circle’ and was the pursuit both of architecture and philosophy. The sum of the sides of the square was equal to the circumference of the circle, so they come into harmony by enclosing the same area. This is sometimes used as a metaphor for the balanced personality. So ‘circling the square’ indicates someone whose rationality is greater than his/her sense of feeling.

As with other problems in sacred geometry, though it is not possible to draw this relationship by simple measurement, because it is part of the natural order, that is where the solution is to be found — in fact in the relationship of the size of the Moon to the size of the Earth.[12] You draw a square around the circle of the Earth (each side of which will equal the Earth’s diameter). Then you draw the Moon on the same scale, sitting on top of the Earth. A circle with its centre as the centre of the Earth, and its circumference passing through the centre of the Moon will have a circumference equal to the sum of the sides of the square enclosing the

Earth.

Fig. 4.2 also contains the 3–4–5 Pythagorean triangle which connects the corners of the Earth and Moon squares. It was from such relationships that the ‘Pythagorean canon of proportions’ was created. The basics of musical harmony depend on intervals created by these divine proportions. There were canons of architecture, of painting and of musical harmony taught in the medieval mystery schools, and partly revived in the Renaissance.

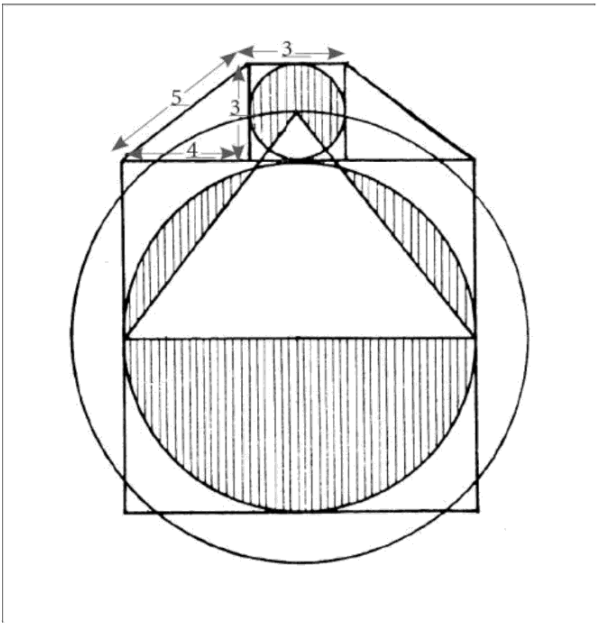

Fig. 4.2. Squaring the circle.
Sacred geometry is based on observations of cosmic relationship. The Great Pyramid’s base straddles the Earth’s equatorial diameter; its apex is at the centre of the Moon, which is in true proportion to the Earth, and held to the square by a Pythagorean 3–4–5 right-angled triangle.

The golden mean

The search for perfect proportion, a shape for containment that is aesthetically pleasing, led to the discovery of the ‘Golden Mean’ or $\sqrt{3}$ rectangle. The square is too mechanical, a long rectangle too awkward. The shape that ‘seems’ to be just right is a square rectangle with the

proportions 1:1.618. This turns out to be the magical proportion favoured by Nature in her designs. A series of these, reducing in size, form a perfect spiral, like the nautilus shell (Fig. 4.3).

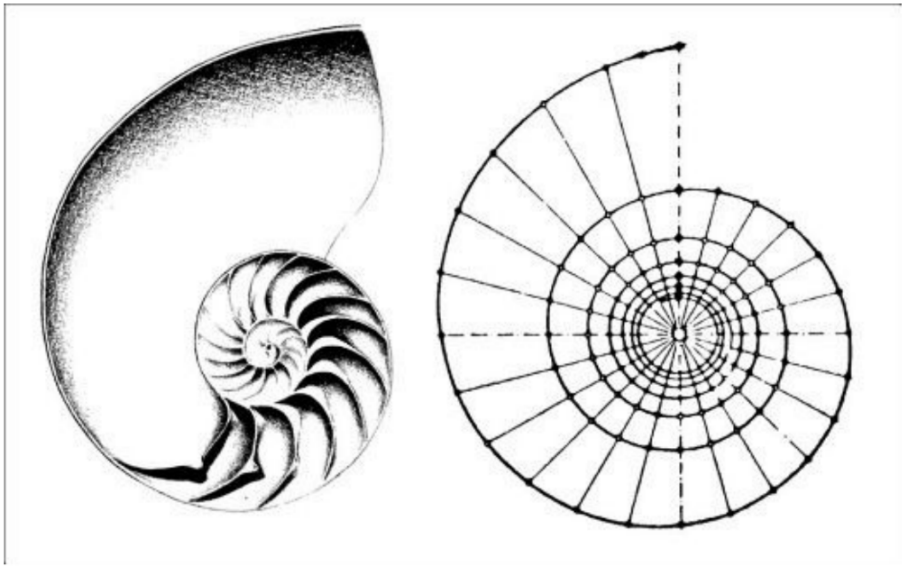

Fig. 4.3. Snail shell & hyperbolic spiral.
The spiral of the snail compared to a similarly-shaped hyperbolic spiral (right), a non-Euclidean open system whose constantly changing curvature is based on very precise geometry.

Spiral forms often display a similar ‘sacred’ proportion of 1:1.618; numbers in the Fibonacci series, for example, which maintains the Golden mean proportions indefinitely, and dictates the beautiful spirals in a sunflower head, Nature’s ingenious way of packing the maximum number of seeds into the head.[13] An intriguing form that arises in Nature, either on its own, or as part of a more complex form, is the *vesica piscis* (Fig. 4.4).

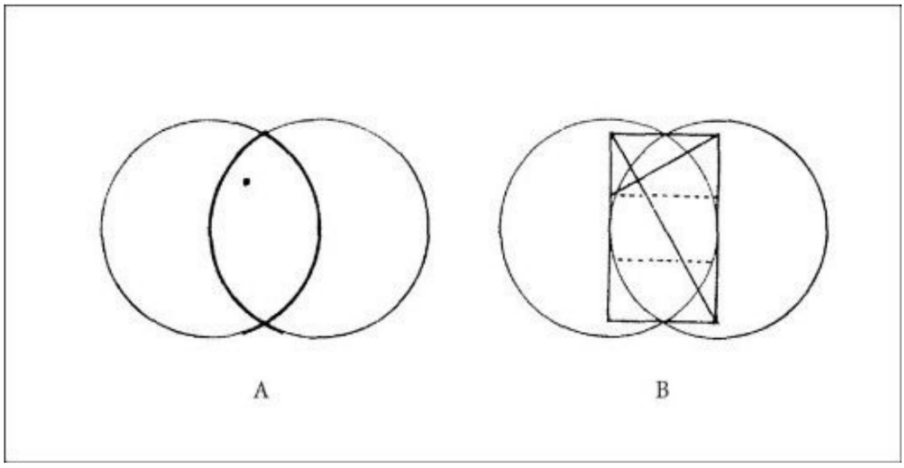

Fig. 4.4. Vesica piscis.
'The Vessel of the Fish' is the simplest and most informative geometrical symbol, being the orifice of two interpenetrating circles which inspired the master masons of the medieval cathedrals. Many Christian symbols, including the fish and the bishop's mitre, have been derived from the vesica. On the left is the fish, whose eye corresponds, on the right, to the geometric 'eye' of the u3 rectangle enclosing the vesica.

It is the feminine principle of generation from which spring all other geometrical forms, from triangles, squares, polygons, to Golden mean rectangles, which abound in sacred architecture.

All the traditional arts and sciences were based on the same cosmic truths expressed in number, and the sacred numbers were the ratios in a revealed world order, drawn from the experience of mystics and confirmed by precise measurements of the solar system. Sacred buildings from Stonehenge to the Temple of Solomon, ancient Egyptian paintings, the works of Michelangelo, all have their magical effects and power over human consciousness attributed to the use of these divine proportions.

The Middle Ages were a time when the physical and the spiritual were completely intertwined, but our histories, based on the rational 'Enlightenment' worldview, regard those centuries as a time of ignorance and deprivation. In fact they were seething with creativity and inspiration: thus the Gothic cathedrals which relied more on an understanding of correct proportion than on reasoned engineering skills. Medieval musicians were fascinated that if you divided an open string by whole numbers, you can get notes that are in exact proportions.[14] They

rediscovered the miracles of harmony, and easily accepted them as Divine. This may be the reason for the extraordinary beauty of medieval chants.

The magic of the egg form

We noted in Chapter 1 that Viktor Schauberger was one of a breed of innovative natural scientists who are able to immerse themselves so deeply in direct perception of the natural world that concepts or theories spontaneously emerge. But his intuition also would bring up ideas directly. An example of this was his discovery that Nature uses egg-shapes to generate creative energies. The egg-shape became an important ingredient of his inventions. The egg is the only closed shape that will naturally generate vortical movement. We shall see in Chapter 17 how Schauberger used egg-shaped compost piles to generate what he called 'fructigenic' energies, to stimulate plant growth.

The egg-shape is found, especially in the leading edge of growth, in many organisms. The structure of the pine cone is also a good example of the egg-shape, though an elongated one. Its form is developed according to another strict geometric formula. When you examine the structure, you will see that the seed 'wings' form two opposing spirals. Moving from left to right (anti-clockwise) the descending (male) spirals complete three revolutions in the wavelength of the cone; the eight ascending (female) spirals, rising to meet the male, are slower moving, completing only one revolution in the cone's overall length. Where the male and female spirals intersect, a seed is born.

This relationship (proportion) of 5:8 is the signature of the 'Golden Section,' known also by the Greek letter *phi* (ϕ), which resolves into the ratio 1:1.618033988. *Phi* — and *pi* (π), the transcendental number that describes the circumference of the circle, are called 'divine proportions.' Many of Nature's forms depend on *phi* for their generation, as it is one of the vehicles for transforming energy into form. By varying the length of the radii from the centre growth point (the radius length being determined by *phi*), a large variety of natural spirals and leaf shapes can be created.

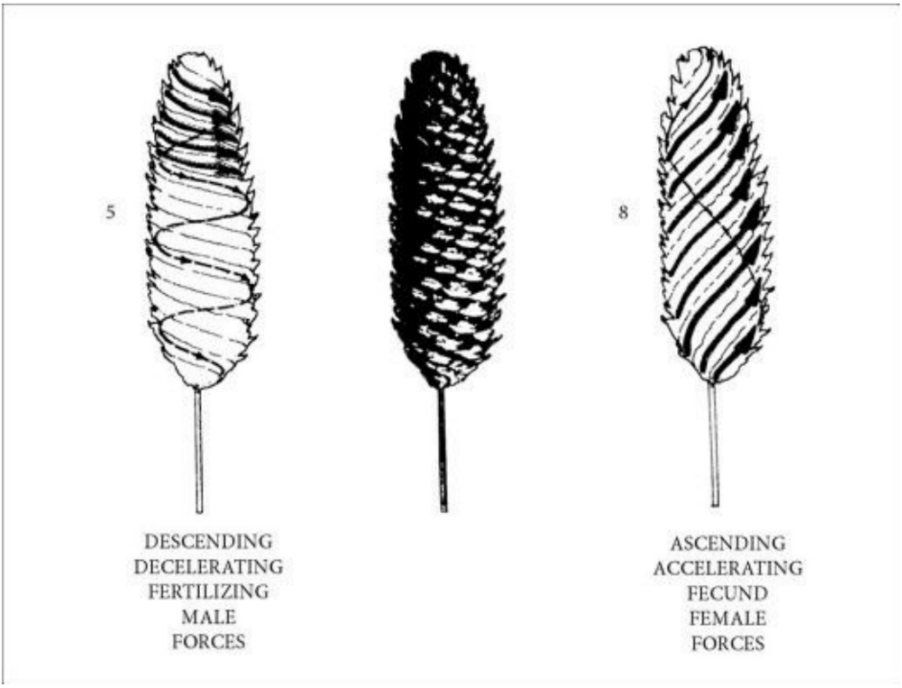

Fig. 4.5. Pine cone symmetry.
The left hand cone shows the five decelerating, positive mail spirals of energy descending to meet the eight accelerating, rising negative female spirals. Where they cross each other, a union of the two forces produces a seed of new life. This illustrates how two antithetical, but oppositely charged forces can interact harmonically and be in balance.

Notes

1. *Your Body Doesn't Lie* (Behavioral Kinesiology) by John Diamond MD, Harper and Row, New York, 1979.
2. This is the basis of the 'muscle test' to discover foods that may be toxic for someone. The subject holds the sample (maybe a bottle of wine) in the left hand, or to their chest, while the 'tester' tries to push down the raised right arm of the subject, who tries to resist the pressure. If the arm has lost muscle tone, the food may have an undesirable effect on the subject.
3. *Living Energies*, p. 42.
4. If they are above absolute zero (–273°C).
5. BBC *Wildlife* magazine, June 2001.
6. See Bibliography: Backster; also Bird & *Tompkins The Secret Life of Plants* contains an evaluation of his work.
7. *Cymatics: The Study of the Interrelationship of Wave-forms with Matter*, by Hans Jenny, Basilius Press, Basle, 1966.
8. Democritus (460–370 BC)

9. Callum Coats shows scores of examples from Nature in *Living Energies*, pp. 51–53.
10. Harold S. Burr, *Blueprint for Immortality: Electrical Patterns of life Discovered*, Spearman, 1972.
11. Lawrence Edwards: *The Vortex of Life: Nature's Patterns in Time and Space*, Floris Books, 1993.
12. Earth's diameter is 7,920 miles; the Moon's is 2,160.
13. Named after a twelfth century Italian mathematician born in Pisa, Leonardo Fibonacci or Filio Bonaccio. The son of an Italian customs agent based in Alexandria, he helped to bring Arabic numbers to the Roman world and popularized the modern decimal system of numbers. The series bearing his name progresses by adding the two previous numbers to make the next, e.g. 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, etc. (It is said that he used it as a model for the growth of a population of rabbits.) Dividing a Fibonacci number by the number before it produces the Golden Mean proportion (the Golden Ratio) in increasing accuracy of decimal places, the larger the number.
14. Walter Schauberger's research of this phenomenon was groundbreaking.

PART TWO

How the World Works

5. Energy Production

The inefficiency of modern technology

Why are the accepted methods of producing energy so inefficient? Far more energy in terms of fuel must be applied than is produced, in most cases more than twice. This has up to now not been of concern, as fossil fuels have been regarded as unlimited and free for the taking, and still are by most, though there is more discussion now of sustainability. The main argument for reducing their use is that their consumption produces CO_2, the principal source of global warming.[1] A power source is now regarded as unsustainable unless, as for example with solar panels, it is renewable; it does not take from the Earth without giving back.

To compare the efficiency of modern technology with that of the human body is illuminating. Walter Schauberger (Viktor's son) calculated that a typical car on a journey of 1000 km (621 miles) consumes as much energy as a human being uses in a whole year. In an 11 hour journey, the car has consumed one human being's annual oxygen requirement. To replenish the oxygen consumed by the world's motor vehicles annually requires healthy forest covering 28% of the world's land area, far more forest than our present, and dwindling, forest cover.[2] There is alarming evidence that the amount of free oxygen in our atmosphere is actually reducing. This comes from an analysis of air captured in bubbles in ancient glaciers in Antarctica as well as in amber.

Using the famous Hasenöhrl-Einstein equation $E=mc^2$, Walter Schauberger calculated that the amount of energy stored in 1 gram of material substance (e.g. flesh, wood, water) amounts to 25 million kWh.[3] The challenge is how to unlock this source of energy. Viktor Schauberger once said: 'More energy is encapsulated in every drop of good spring water than an average power station is able to produce.'[4]

Schauberger observed that Nature's methods of producing energy were far more efficient, which led him to design implosion machines for natural energy production in the belief that they would solve the crisis of modern technology.

Entropy and ectropy

James Lovelock proposed in his Gaia hypothesis that Nature (for his mathematical model he used the name 'Daisyworld') regulates the Earth's energy balance through natural feedback mechanisms to suit the evolution of life forms. All energy used by living and non-living systems eventually degrades to irrecoverable waste heat, or disorder. All our physical processes lead to entropy. Nature made use of this to create the greenhouse effect, by which increasingly complex life forms were introduced into the biosphere as the climate was gradually modified.[5]

Entropy or disorder has been recycled by the Earth's greenhouse effect for millions of years. Every time we walk a pace forward, respiratory processes in the body burn a little ordered carbohydrate to power the muscles of our legs, and some disordered waste heat has been lost without trace from the surface of the body. Every time a simple bacterium moves a milli-millimetre it releases a few micro-calories of disordered heat waste. But every time a jet plane cuts its way through the stratosphere it leaves behind a massive amount of irrecoverable heat that disperses into the planetary heat sink in total disorder. It is all a question of degree. We are now increasing entropy to an unsustainable degree that is decimating life on the planet.

The Earth environment provides an extremely narrow temperature range compared to the extremes found in the Universe. Growth and development of life forms require moderate temperature conditions, as large or abrupt changes are harmful to most organisms. Our warped technology has made us used to very high temperatures; we produce power through combustion and hot fission. Most of our manufacturing processes require excessive heat and high pressure. We create chemical compounds using the coercion of heat and pressure. Technical man can indeed produce a high degree of order in one place, but in so doing he creates a much greater amount of disorder elsewhere.

Scientific 'laws'

Scientific laws are fairly reliable general statements about particular events *under specific circumstances*. The Second Law of Thermodynamics, for example, which states that all closed systems must generate into chaos without input of energy to maintain the ordered state,

is thought to be inviolable. Schauberger, by demonstrating that energy could arise spontaneously in his 'perpetual motion' machines, or that frictionless movement could be achieved, disproved this axiom.

Due to the remarkable feedback systems of the atmosphere and the biosphere, temperatures on Earth are kept within the narrow band of those required for abundant life, especially of higher life forms. Gaia research has shown that it is life itself which has fine-tuned that thermostat, so that more complex life forms are able to develop. Some species live within small microclimates, so that on one tree you can find several kinds of finch, each having its own niche.

Humanity is considered to be the most adaptable of species, able to survive in a range of about –10°C (14°F) to +40°C (104°F). While that is true for the species, it is not true for individuals, unless you believe that individual physical health and spiritual wellbeing are stronger than they have ever been. One of the requirements of Nature is that, in order to be whole, we have to be in tune with our environment. It takes many generations of adaptation to a specific environment for people to develop fine physical qualities and sensitive psychic faculties. Similarly it takes generations to adapt safely to a change in the environment (for instance, as a result of global warming or microwave radiation). In the past two hundred years our bodies have been challenged to adapt to higher temperatures and in the last sixty to stressful microwave energy.

Compare this to the efforts modern humans take to accommodate a life divorced from Nature, to jet travel life and unnatural food, and one subject to enormous electromagnetic stress. We take mountains of pills to counteract physical and emotional imbalances or go to psychotherapists to assuage our spiritual starvation. While he does not suggest returning to primitive life-styles, Schauberger assures us that, while our lives are now completely out of balance, by following Nature's clues we can regain both equilibrium and sanity.

Energy pollution

We usually think of pollution in physical terms, like a room full of tobacco smoke, or a factory's chemical effluent poisoning a stream. This is the boundary for conventional science. Thus when people raise fears about the safety of microwave ovens, radar transmission towers, mobile phones, the official response from scientists is inevitably, 'there's no

evidence that they are any danger to health.' Naturally, cynical collusion between government and industry only strengthens this misguided view in order to discourage public protest or lawsuits.

Viktor Schauberger brought a further dimension to the concept of energy pollution. He understood that the creative process of Nature is consistently to refine, to diversify and produce higher forms of organic systems — to use a metaphor from human experience — to raise consciousness (consciousness as integration of higher levels of connectedness). He distinguished three forms in which subtle energies perform these upwardly evolutionary functions, which in the last chapter we called *dynagens*, *fructigens* and *qualigens*.

They are produced, as we shall see in the chapters that follow, through the specific forms of motion and temperature that Nature designed for the purpose of evolution. If I were in a court of law, it is these complex processes that I would cite as evidence for meaning, purpose and above all, intelligence in Nature. Schauberger described these 'enlightened' control systems thirty years before Jim Lovelock and his colleagues proposed the Gaia theory of intelligent self-sustainability in Nature, and in the area of evolutionary energies, went far ahead of them.

The blocking of these creative energies by the emanations from modern technological processes Schauberger saw as the most dangerous form of pollution. Their heat, pressure and, above all, chaotic effects actually destroy the more delicate energies of Nature's constructive developmental processes. Thus, chemicals invading a stream not only make it dirty and smelly, but they also destroy the complex structure of the water, so that it can no longer behave like healthy water, but literally dies (see Chapter 11).

This form of pollution has an evolutionary as well as a health effect on people. Schauberger suggested that this explained the well-documented degeneration of intelligence and the increase of violence in industrial communities. Dr Weston Price, studying fourteen isolated indigenous communities around the world in the early 1930s noted this in the effect that changing from their slowly evolved local diet to a western-type diet had on these people (for food is energy medicine!).[6]

We don't know how much energy pollution from anti-Nature technology affects the environment in general. Logically it should be most prevalent near power stations, large factories and the like.

However, when rivers, which are the arteries of the blood of the Earth (see Chapter 11), and normally transmit energy to the surrounding countryside, are turned into ‘lifeless corpses’ (as Schauberger used to say), what effect will this cadaverous energy have on the environment? Clearly, if humanity is to reverse the downward devolutionary spiral, our first priority must be to change over to Nature’s energy systems.

The choice before us

Humanity lived a relatively natural and sustainable lifestyle until fairly recent times. The growth of industry and its massive demand for energy resources has introduced increasing degrees of instability. Going back over 2000 years, but much more clearly in the last 350 years, it has been possible to chart a different kind of development which has brought with it a deterioration of the natural environment, increasing disorder and inefficiency.

Callum Coats shows this divergence of the two systems in the accompanying chart (Fig. 5.1). In the last 150 years with rapid industrialization, a scientifically based technology developed, and the divergence shown by the lower curve has become dramatic, with dire consequences for the environment.

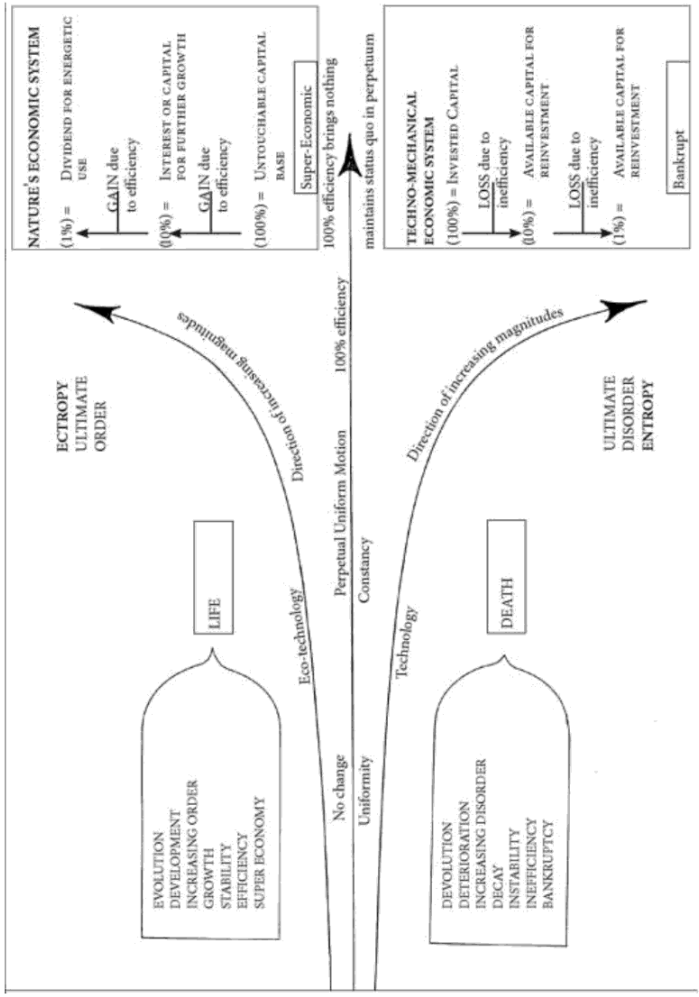

Fig. 5.1. The fateful choice.

By contrast, the curve rising up toward ‘ectropy’ shows how natural evolution builds more complex systems with more evolved species on the foundation of earlier ones. This is how biodiversity increases. The appearance of new species requires a surplus of evolutionary energies deriving from the improved conditions of interdependence. It is as though the growth in natural capital from the sound economy of evolution produces interest or surplus energy from which new life forms may be formed. Nature’s system is so economical that little is wasted. The many seeds, nuts and fruits which sustain all the currently existing life forms, can be seen as the surplus on Nature’s interest.

The mineral resources of the Earth, which are Nature’s base capital,

should never be used. As we shall see in Chapter 17, Schauberger illustrates how they are essential building blocks in the production of formative energies. The indigenous people understood their importance. Mineral-rich lands are for them energy-enhanced areas that they regard as sacred.

Nature has to increase her capital by say 10%, to allow for growth, movement, and evolution of new life forms. To live sustainably is to live off Nature's surpluses (such as the careful harvesting of trees under properly controlled mixed forest management). The increasing diversity of evolving Nature brings more stability and the ability to withstand temporary setbacks (Fig. 5.1).

The centre line in Fig. 5.1 represents 100% efficiency. This may seem the best direction, but it is not the answer. It is undynamic, like circular motion. Its uniform condition means it never increases or decreases. Above all, the purpose of Nature is to seek movement, change and evolution; she despises stasis and uniformity.

The lower curve represents the path on which we are at this time. The use of energy is improvident and wasteful, replacing diversity with mass production for quick return, which Nature cannot tolerate. Where once rich forest flourished, with a wide diversity of interdependent species of trees and animals, there exist now only monocultures. This requires enormous, hedgeless fields where only one crop is grown, dependent on fertilizers that slowly destroy the living humus; they become monotonous environmental wastelands. Gone are the high yielding, organically nourished fields surrounded by windbreaking hedgerows teeming with birds, small animals and wildflowers. The frequently reported notices of endangered or newly extinct species bear witness to this ebbing biodiversity.

What Schauberger calls the 'techno-mechanical economic system' produces a downward curve, accelerating as unnatural systems of energy are applied more widely. Pollution apart, these systems are clearly inefficient. In the 1970s, Walter Schauberger discussed industrial efficiency with Dr Fritz Kortegast, head of research and development at Mercedes-Benz in Stuttgart, who confirmed that at that time the propulsive energy produced by their most sophisticated engines was only 13% of the total energy introduced, the balance consumed as dissipated heat and pollution. A business this inefficient would soon fail.

The truth is that our techno-mechanical economic system is created

by vested interests that consume energy through the massive exploitation of non-renewable resources. It must be clear that the ultimately such unsustainable technology can produce only economic collapse, social chaos and environmental deterioration. The disorder and decay that we are witnessing come from our dependence on an energy system that is self-destructive. In this system, an investment of $100 produces $13, which in turn would produce only $1.69.[7]

Energy defines quality

Convinced that we are the pinnacle of life on the Earth, we humans are actually destroying the very basis of creativity on the planet. It is the diversity of Nature that supports our place in the biosphere. The ongoing extraction of oil, coal and other minerals, deforestation, overfishing, and the continual loss of animal and plant species threaten our very existence. It is well accepted that only inferior kinds of fish can live in poor quality water. It is no different for people. By allowing the natural resources of the environment to depreciate, the quality of human potential inevitably suffers.

Conventional science does not understand the importance of quality. For the reductionist scientist water is water, or a genetically engineered crop is the ‘substantial equivalent’ of a conventional crop. No two things can be identical in Nature whose processes depend on constant change and transformation. While quantitative science states that 1 + 1 makes 2, no two natural systems can ever be equated.

Monocultures and mass production mean repetition. They repeat an energetic or experiential process that has already happened, in which no new development, no advance, however slight, is possible. Identical repetition goes against evolution, because it wastes energy. The development of a new natural process or system demands change and variety.

George Gurdjieff, the Caucasian mystic and teacher, used to say that the ordinary person operates like a blind machine with no awareness or consciousness. Viktor Schauberger saw contemporary humans as superficial creatures that look, but never see. Our seeing is limited to recognition, not deep examination. We mistake outward appearance for totality, effect for cause. What we actually see are the external shells of manifestation, what is left by the formative energy. We don’t see the

energy that created the organism.

The creative energy-vortex

Callum Coats illustrates the process of the creation of matter in the diagram (Fig. 5.2). As we have seen, creative energy moves spirally in the form of a vortex. The creative process takes place as the energy containing the blueprint of what is being created moves in whatever way it needs to in orderto create the system it wishes. It draws down matter as a mirror image of the idea or blueprint. This is why the physical is said to be the shell of the organic reality.

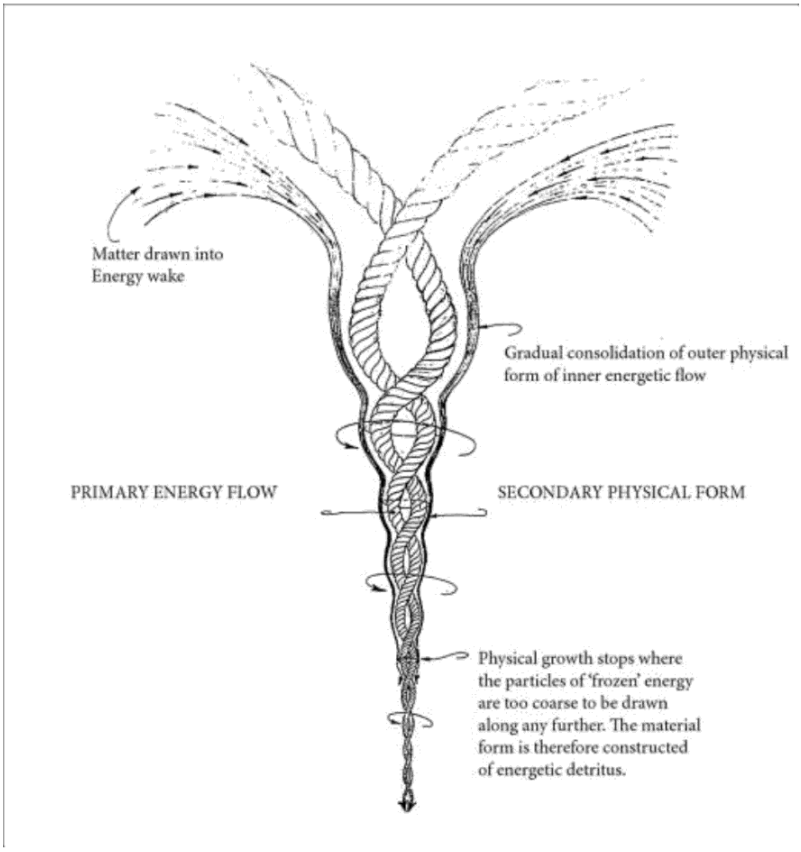

Fig. 5.2. Energy and form.
In the beginning was energy; it is primary — the cause; it creates the form in which it wishes to move; the form is the mirror of the energy — the secondary effect.

What we have described is the formative energy. There is also the sustaining energy, the *Ch'i* in Chinese terms, which moves in the same way. This is the way a healthy river moves; and the blood in our capillaries, external manifestations of an energy path. We see the blood, but we don't see the energy that pushes it. What is visible in blood is the matter that is too coarse to be taken to the final destination of the energy. Energy manifests how it wants to move in the most efficient way. It is as if, when we build a house, we build it to suit our lifestyle, one in which it is easy to move around.

All natural systems are mirrors of their pattern of energy, or of the 'idea' that sought to create them in the first place. When the system is in place, the energy from which it originated is rejected as matter being too coarse to be carried further in the energy stream. Viktor Schauberger used to describe the Earth as a huge dung-heap, saying that all living things were the result of waste matter ejected by the creative energies moving in a certain way, and which were unable to continue transporting the material further.

Put simply, it is only those energies that remain immaterial that contribute to an increase in life-force, while the remaining energetic material is expelled as waste, just like daily human defecation. There are subtle nonmaterial energies in the food we eat, which are used to produce thought processes and metabolic functions. The human body is like a energy path containing a complex vortex which transforms the energy of matter into intellectual and physical actions. It is therefore axiomatic that the quality of our functions is dependent on the quality of the energy that we ingest. Viktor Schauberger campaigned for high quality nutrition and water.

So, physical manifestation depends on the movement of energy. All of Nature's creations that we observe are the outward shell of the formative energy path. Schauberger used to say that a tree will grow only to the height to which the energies can draw up the physical mass, although the tree's main energy body lies above it.

He demonstrated that the vortex is the natural form of movement for energy. The accompanying photograph (Fig. 5.3) well illustrates the spiraling form that water prefers. Each of the twists is slightly smaller than the one above. Viktor's son, Walter, calculated the mathematics and proportions of this structure.[8]

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