THE BIOLOGY OF WONDER

ALIVENESS, FEELING, AND THE METAMORPHOSIS OF SCIENCE

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new society PUBLISHERS

To Emma

Thinking of that early spring day when you had been walking your black poodle and returned so enthusiastically. You told me that you had suddenly seen the flat sand hill with its scattered oak trees behind our house all ablaze with beauty.

The lower animals, like man, manifestly feel pleasure and pain, happiness and misery.

Charles Darwin

All is allegory. Each creature is key to all other creatures.

J. M. Coetzee

The conscious subject is not really perceiving until it recognizes itself as part of what it perceives.

Northrop Frye

Chapter 4: World Inscape

You cannot watch the leaflets and flowerheads without knowing: You are related to them … Springtime announces so vociferously that we too are a version of spring. For this is the reason for our delight in it.

— Lou Andreas-Salomé

A few years later I was in Estonia again. Kalevi had invited me to one of his legendary seminars he hosts for his students every year in summer. We met at the Baltic Sea at the tip of Puhtu peninsula. It was a tranquil, summery and serene moment out of time. There were no waves smashing the sea's glassy-smooth surface, which had the effect of expanding the sky, doubling its volume. The air was soft. Delicate milky and rose-coloured streaks of cloud ambled slowly across a mild blue sky. The evenings remained full of light until very late, making it seem that the dusk would never end. Sea and sky dissolved into expanses of light. At the shore there was no maritime in-between zone of rocks sprayed with surf or salty, sodden flats. There were only wild rose bushes, still thick with flowers, which grew between massive granite boulders that aeons of water and ice had patiently crafted into crude spheres.

The chill and the blackness of winter had so thoroughly vanished that I could hardly imagine them ever returning. In summer, Estonia was a world of light. I could not imagine any other temperate region where wild herbs and spring and summer flowers erupted simultaneously, entangling each other in the ecstasy of a short summer season of dazzling brightness. The plants were showered with light for 20 hours a day by a sun that seemingly did not want to set. Summer in Estonia seemed to me like a paroxysm of passion that made everything possible.

The seminar took place in the former summer home of Baron Jakob von Uexküll, the iconoclastic biologist, who had constructed a

modest residence at the tip of the peninsula. It was a spacious wooden house with a gable roof and a porch that opened onto a wide terrace. From there crumbling stairs led down into a neglected but romantic garden. Here we sat, in the shadow of rampant lilacs and old lime woods, discussing a new science of the living.

A couple of years before the Puhtu summer school, Jakob von Uexküll's son Thure had told me how he had spent the summers here in the summer house as a young child. I met Thure at his home in the southern German city of Freiburg, shortly before he died at a very old age. I remember the font size on his computer screen so much magnified that one sentence seemed to fill the whole monitor. We talked about a new vision of biology, but also about his father, Jakob, and Thure's early childhood at the Baltic shores. He had passed some of what he now remembered as endless summer holidays together with his father in the faded aristocratic setting on the Puhtu peninsula. Already then it must have felt like a bygone era that lingered like a mirage for a few years on the horizon before imploding during the destructive frenzy of the First World War. A black and white photograph from 1915 shows a bright-looking blond boy by the hand of his father, who leans on a walking stick. By the time of Thure's boyhood holidays there, the weathered statue of Schiller — the very first in the world of many erected in the poet's honor — had sunk deeply into the ground in the Puhtu park. The beeches, the northernmost specimens of this European tree species, stood tall and commanding as if they had been there from the beginning of time. Putting aside his work on new scientific papers Jakob von Uexküll roamed the park and the seashore with his son, showing him the same realities of nature that his papers described in elaborate verbal accounts. Thure said that his father cherished one particular aim — to help young Thure learn to love plants and animals in their own right, as individual beings, and not as sentimental projections of his own emotions (the "sweet" wren, the "greedy" wasp).

Old Baron von Uexküll taught his son to relate the appearances of living beings to the factors that gave meanings to their behaviors and to their entire lives. Summer after summer, Thure underwent an intensive course in feelings, an intensive course for all his senses. There was the ceaseless sunlight, the light that still filtered through the blue linen curtains at 10 p.m. There were the grains of sand between his toes, the creaking floorboards in the house, the smell of wood fire and kelp, the cool breath of the trees, the joyous whimpering of the hounds, the melancholy tune of the bluethroat during the endless evenings, the warm milk before bedtime. The weeks in Estonia taught Thure how deeply entangled the inside and outside of living beings are. He learned how deeply any organism's feeling takes hold of its bodily appearance, whether it was self-conscious or oblivious of that fact. He learned to realize that very experience is saturated with joy or pain to some degree — and that any one of these feelings can be traced to a certain embodiment, a distinct bodily sensation and gesture.

ENACTING INWARDNESS

In the evening, after the first lectures, we set up a fire at the beach amidst the pebbles which were still warm from the sun. We sat on the boulders sipping cans of lukewarm Saku beer and inhaling the flavors of wood smoke and sweet, rotting seaweed. All over the sand flat, the rounded stones were strewn like the last outposts of reality before the lead-grey waterfront dissolved somewhere in the distance into the hazy atmosphere. In the bushes a great reed warbler repeated his signature song.

The light did not want to go away. It was late, ten or eleven, and still there was milky daylight. I got up, flipped open a new can of beer, and strolled down the beach. No air stirred in the breathless stillness. Could any place in southern Europe offer a more dramatic sunset? The light in these latitudes promised something more to come, an eternal becoming that assured us of some future fulfillment and yet eternally postponed it — a breathless tease. Russians had

loved this sweetness when they still occupied the Baltic states. The former Estonian Soviet Republic offered the modest freedom of an unexpected resort holiday — the endless warm nights, loads of beer, maybe a summer love.

"Ah! When I hear your Baltic accent!" a Leningrad taxi driver once told an Estonian writer friend of mine without any bitterness at the course of history, "Then I must think back to the wonderful health cure I made on Saarema Island. The wide beaches, those sweet days." Estonia was the Soviet Adriatic, a summer playground full of fresh chances, hopes and beautiful melancholy.

I walked a long way that evening. Before turning back I wandered some distance into an old oak grove lining the coast. The trees' spreading branches had produced a spacious, airy canopy. The space beneath the trees was so vast that it felt like a lush pasture, a "wooded meadow," as the Estonians call it. This type of landscape used to be a commons grazing ground whose grass and acorns once fed the livestock. The coastal meadow was a searingly beautiful, magical scenery. It brought to mind the countless commons around the world, managed landscapes that balance the well-being of the ecosystem with the needs of its human partners.

Along the roadside, tall stands of Queen Anne's lace greeted me. By some strange accident its flowering umbel had been chipped off except for a tiny strip of tissue that held the blossom to the stalk. But the blossom, instead of falling over and withering, had managed to rally and stand upright with an elegant curve. I thought of Goethe, the poet and naturalist, whom von Uexküll often quoted enthusiastically. For Goethe, every being appeared in the form of a time-shape (*Zeitgestalt*).[1] Unlike the surface of a rock, the skin of an organism shows not only the passage of time and its physical effects, but also how the plant has reacted to the manifold changes it has endured. It displays how its life has been affected by various encounters and how it is predisposed to act in the future. The gestalt of an organism shows how it relates existentially to, say, the experience of a summer shower with its heavy drops of rain or to the sharp mandibles of a

voracious beetle. The stalk of the Queen Anne's lace spiraled around its injury, searching for the sun. It was a gesture that reminded me of a fencer's movement, stopped in time by stroboscopic photography. The stalk showed the frozen sequence of motions which incorporated its past and its present, but which also displayed, in the upward direction of the plant's growth, its future. It seemed to me like a sculpture expressing the desire to be.

On that wooded meadow, I reflected that a plant is not only the result of all the past influences that have acted upon it. The evidence of these experiences is still there, still present. When a new stretch of bark grows around an abrasion caused by a carelessly installed piece of barbed wire, we can witness the cause (the sharp tip), the effect (an injury to the plant), but also the *living experience* (the way the tree has coped with the wire by forming scar tissue around it, a protrusion of the bark). Organisms form scars over their injuries and in so doing bear witness to the original harm as well as to their self-healing. They embrace their past, making it the nucleus of their present. Their bodies *are* this past. But their visible, resolute growth also speaks to their future. Something immaterial seeks to express a necessary form. The achievement of this form, a gesture of the present, is a sign of aliveness.

I was thinking that if the physics of life can only be adequately expressed in terms of inwardness and feeling, this dimension necessarily must also be visible as a physical reality. If living beings realize themselves as selves by regulating the flow of matter through their identities, according to some deeply felt needs, then the matter that comprises an organism must express this subjectivity. It must display feeling. It must enact inwardness. It must *be* inwardness crystallized. We could even say that by embodying feeling, form allows us to feel the traces of lived subjectivity in other living beings. This subjectivity is different from our own in detail, but not in principle. If this is true, nature cannot be seen as the mute backdrop of an endless series of cause-and-effect reactions, but rather must be understood as a richly articulate, expressive medium. An organism's feeling, its inwardness, is accessible through its bodily presence.

That does not mean that other beings share and enunciate *our* way of feeling. This would be naive. By talking about feeling, I do not intend to enlarge and extend the notion of a particularly human condition to all nature. Nor do I refer to the psychological unconscious. Feeling is much more basic and existential. It is an experience and a formative power that binds an organism together. It does not spring forth from the attractive and repulsive forces of atoms, but from a living unit's concern with its own persistence, growth and flourishing. Feeling means self-concern — and we do know that sensation. Feeling means inwardness, and it is this dimension that we share with other sentient beings, if only to a very small degree. Certainly the inwardness of many life forms is probably not very similar to human self-awareness and emotions, and to our sense of success and loss, grief and triumph. We cannot know to what degree we share these emotions. But we do know that we share with other beings the same trembling for our existence, its future, its unfolding, its flourishing. These are feelings that any autonomous living creature experiences. We are the same as all other creatures in this sense because we all have a vulnerable outside that mirrors our inward sense of vulnerability.

In the forest loneliness of the wooded meadow, the thought grew in me that the desire of the living I talked about in the previous chapters does not only manifest inside us. It also displays itself before us in the bodies of other beings. If we can best describe the physics of life as feeling, then this feeling nevertheless is always entangled with the matter the organism is made from. Feeling without matter is impossible. What we experience inwardly as emotion is something that happens outwardly to ourselves as bodies. And everything that happens to our bodies, and every way we react to that which happens, can be perceived externally. All life is a gift of matter. All living imagination stems from that unconditional surrender. It is matter that makes the potential of intimate, meaningful connections visible, which then makes our bodies more than "just" matter, but still, at the same time, nothing but matter.

For these reasons, poetic ecology, the new "subjective physics" of organisms, rejects the mainstream biology's obsession with explaining all qualities of organisms by atomic causal forces alone. In this respect, a poetic ecology is less materialistic than the mainstream biological thinking it wishes to correct. But at the same time it pays tribute to the body in its own right, in its role as the absolute ground zero for feeling, which is not possible outside the body. Hence, in a strange way, poetic ecology is more materialistic than many of the dogmas of contemporary biology, which echo the rationalist concepts of the past such as the idea that an abstract genetic code directs a body as it would a machine. The body, however, is not an abstract structure that works according to biological necessities alone; it is an irreducible entity of reality in its own right whose feelings of what is good or bad (with all the gradations in between) define its existence and activities. The physics of life identifies the unique individual body — and not the impersonal, generic anatomical machinery — as a crucial factor in understanding how living beings experience their worlds. The hidden feeling of aliveness is inscribed within matter — sensitive, delicate and highly destructible matter. The desire for life *relies* on matter. In this way it pervades and saturates matter with living significance, and only thereby makes it beautiful. Life's subjectivity inescapably emerges into the visible, into the ecstasy of color and odor, of melody and touch. In this respect every living being is an open book, an individual looking glass through which the whole book of nature becomes readable. This transparency is not romantic projection. It is the result of our being inwardly the same as what the outward expressiveness of other beings shows. I will try to explain this connection in the next paragraphs.

Standard biology, still firmly anchored in the past, regards an organism as neutral machinery that cannot be understood from its outward appearance. Therefore, to be understood, it must be dissected. For the dismembering gaze of the classic scientific approach, corporeality as something meaningful in itself makes no sense at all. Here, the body can only be conceived of as a tool, not as a purpose

in its own right, through which the ultimate, simple desire of becoming real shines through. Poetic ecology, however, reconciles the science of life with the experience of being alive, and therefore with what we see and what we love. From its viewpoint, as when gazing into the face of another human being, the whole of nature becomes a "thou."

It is startling to see the degree to which biology has abandoned interest in the expressive aspect of living beings. Aesthetics is not a part of its academic university curriculum even though all encounters with other beings are inescapably aesthetic, mediated through the senses, possible only through sight and touch and smell and the beating of our hearts. Morphology, the venerable old science of living forms, leads a ghostly shadow life amidst dusty botanical collections and formaldehyde-scented repositories.

Yet many a biology student has been motivated by a deep fascination with living plants and animals. Nature first reveals itself to nearly all people as a source of liveliness and enthusiasm. Every child demonstrates this deep enthrallment when she plays on a meadow in spring. Immediately she starts to gather sticks and blossoms, worms and beetles, and sinks deeply into the living world. Other peoples and epochs have taken this passion seriously. But not our modern, academic orthodoxy, which continues to regard any candid love for nature as a throwback to romanticism and its questionable cultural heritage. It is worth recalling that romanticism tried to restore our original relationship to living things, a task that it never wholly accomplished.

Tribal peoples nearly everywhere live in a relationship of deep reverence and awe in respect to animals, plants and even rocks and lakes. The Australian Aborigines narrate the dramas of their mythology based on natural beings and places. The force of creation speaks to them with and through the voices of other creatures, as well as of their own bodies. The senses provide access to the deep knowledge inherent in the ecosystem

of which humans are a part. An Aborigine elder explained that he experiences the power of sacred paintings like the "fresh sparkling of water." Their power exerts a force on the observer, it immerses us corporeally and psychically, like a bath in a cool eddy of a wild brook.

The magical force of beginnings can be sensed everywhere in the ordinary forces of nature. For this reason the time of creation, the Aborigine's "Dreamtime," can be expressed only through real and ordinary beings and landscapes. In their ritual art, the Aborigines therefore use natural materials and refer to the sign language of biological reality to partake in the original forces of creation. We do not have to travel to Australia to witness similar world views that could inspire a correction of our own. In Europe, in the Middle Ages, when earthly realities generally meant less and heavenly promises everything, nature was still experienced as revelation. It was widely regarded as the "second book" of God, which the creator had written in living letters so that everyone who had a body could read its meanings.

Mainstream science, on the other hand, is so obsessed by pure facts that its image of life sometimes seems as if an art critic would attempt to describe a work of art only by listing its color pigments and their wavelengths. Science's hyper-literalism misses much of what is really going on. Not so long ago, even philosophers took their lived experiences more seriously than they do today. Immanuel Kant considered the manifoldness of life forms and the question, "What is beauty?" as inseparable. He regarded them as different ways of looking at the same issue.

On my long evening stroll along Estonia's flowering coast, modern science's success story of building on a renunciation of lived experience, of the world as it is, seemed to me like a lengthy and painful detour from what really matters. I realized that with our craving to build a new and better world we have thoughtlessly given up that one crucial sphere to which we are linked by the umbilical cord of life. We have attempted to sneak away from our "Siamese connection with all other beings," as the novelist Herman Melville beautifully described our situation. We have tried to escape from ourselves.

Poetic ecology reverses the current viewpoint. We do not experience ourselves as subjects solely because we are endowed with a mind. Rather we have a mind because all life is subjectivity. Our subjectivity stems from a desire without which any physics of life will remain incomplete.

THE REBIRTH OF THE PLANT'S SOUL

As we realize that subjectivity is all-pervasive, we can serenely extend the idea of universal feeling from animals, seemingly closer to us, to plants. Even if plants, compared to animals, respond to stimuli slowly and lethargically (they do not have nerves, as animals do), their lives are governed by the same striving for plenitude and wholeness as ours. And biologists are increasingly discovering how energetically green organisms show their zest for life. The signs are everywhere. We just haven't bothered to pay attention.

Instead of electrical impulses, many plant cells communicate through messenger molecules. These are particles that float through the tiny vertical tubes in stalks and stems where plants' ubiquitous body liquids circulate. These particles can also exit the leaves as gases. In this way, vegetation can even issue cries for help. A few seconds after a plant's stalk is injured, the root tip deep in the soil is flooded by a cascade of alarm molecules. Plants are capable of displaying all the qualities that have so far been reserved for animals. The chief difference is that vegetation is slower, more sedate and silent. It is as if plants lead lives in another dimension that is barely accessible to our senses. But they are subject to the same existential challenges we have to face.

Plants even sense touch. A gentle stroke suffices to make them shift their direction of growth. And plants can see — not with animal eyes, but with their whole bodies. Their green surface is one giant organ of vision. Because their cells are able to discern the proportions of different wavelengths in the sunlight, they can direct growth in the direction of best energetic yield. Other senses also allow vegetation to enhance its self-flourishing. Seedlings taste nutrients with

their root tips. Spruce sprouts lodged in a steep rock crevice can feel the pull of gravity through minuscule crystals in special cells that act like a gyrosensor in a handheld device. Little corn sprouts use their body surfaces to smell alarm substances emitted by neighboring plants that have been invaded by parasites.

All these discoveries made by curious botanists (which often have been rediscoveries of knowledge from a time when we had more respect for the capabilities of our green fellow creatures) are a source of constant suspicion for some scientists and a spring of delight for others. What seems to be the astonishing skills of plants is indeed not much more than the basic autonomy found in every living being, and therefore something that every living being masters without too much effort. The intelligence of plants reveals life's ubiquitous intelligence. What we observe in humble vegetables is life itself, which longs for continuity and therefore consolidates itself around this subjective concern. The plant that directs its growth tendency to the light (a tropism) does not understand the arithmetic of wavelengths; it simply perceives light as good, in the form of a positive affection. This is not so different from those of us who prefer to sit neither in the direct sun nor in total shade, and therefore without thinking move to the most pleasing location.

Today's botanists have used ingenious experiments to confirm the subjectivity of plants. The plant physiologist Anthony Trewawas of Edinburgh University has observed that identical plant clones — multiple vegetative twins whose DNA sequences are identical to the letter — behave differently, even though their room temperature and moisture are the same. They are clones, but their bodies unfold into individual shapes. "They individually choose between different options," Trewawas says.[2] Every sprout has its own preferences. Each is an individual, committed to its ongoing existence in its particular body, and not simply an automaton carrying out a genetic blueprint. For Trewawas it is just this stubbornness that must be viewed as intelligence. Intelligence, according to the meaning of the Latin verb *intelligere*, means to be in between, to be able to choose. It signifies

the ability to make a decision, and hence the judgment of a distinct self for whom a choice means something — survival, growth, flourishing. In this sense intelligence and life are one and the same thing.

METAMORPHOSES

In plants' bodies, whose presence I sensed so acutely on that long Estonian evening, I can feel powers at work that also are at work in myself. These are the powers of life. We do not only subjectively feel them; we objectively see them in other bodies as well, although this objectivity is not absolute, but poetic. Conversely, subjectivity, as it arises within our bodies in space, is entirely empirical. It exists. It can be observed. Empirical subjectivity is experience, which leads to poetic objectivity in its expression through the body itself. This is a wholly materialist approach to biological phenomena, but one that makes freedom not only possible, but necessary. Its empirical basis lets us glimpse a world beyond our familiar mental template of cause and effect. In all our clumsy tenderness, we living beings are instruments of an inner dimension that, when seen by other beings, can be understood.

In the blossom of the flower, the bliss of beginning is real — and at the same time becomes a metaphor for my individual life. The blossom is a primordial metaphor I generate with my body and cannot do without. It enables me to understand myself — to see my own beginning, my own hoping as a facet of the general principles of the living world. I partake in a universal condition which pervades all living forms and which makes life possible. We could call it the *conditio vitae* in contrast to the *conditio humana* that existential philosophers like Karl Jaspers coined to describe the profound inner abyss of a human life. Seen from the perspective of the *conditio humana* we are a suffering mankind. We are alone, and thrown into the freedom to choose. Observed from the angle of the *conditio vitae*, however, we are not isolated, but deeply intertwined with the biosphere, not only by our bodily metabolisms but also through the existential meanings and needs that all sentient beings have. We are

brothers and sisters of everything alive and feeling. We are embraced by that which again and again comes to life, and through this we can transcend the inevitable, constant suffering of life.

If we look carefully, we can observe that the embodied experience of nature has shaped the form of our language and our verbal expressions throughout the history of our species. We still articulate our emotions in elemental metaphors: love is hot, anger steams, wrath rages like thunder, the soul thirsts. And vice-versa: our experience of the elements is also a passionate act. There is the tender air of springtime, the furious thunderstorm, the sweetly fragrant, yet prickly rose. The whole biosphere lends itself to emotional resonance and becomes a symbolically extended self. This is not the case simply because cultural habits form our language, as is generally assumed today. We create linguistic expressions on the basis of embodied experiences, and we can find the reference point for these experiences in other beings that embody the same existential feelings.

Symbols thus become the language of the psyche. In this sense, the vegetative world in front of our eyes is nothing other than our own inwardness. Nature shows this inwardness as a silent mirror, expressing before us what is unnameable because it is within us. In contemplating the life of a tree, a human can comprehend similar forces that he knows exists within himself without having to analyze them, because, again, they are part of the self with which he organizes experience. The knotty oak and the sea of grass caressed by the wind are living reservoirs of understanding, as when I sense my own powers of endurance or joy or melancholy. Because the plant is always growing, it illustrates not only the principle of self-conservation in life, but also the intensification of self. The plant is aliveness made physical, embodied in lush leaves and buds impatient to bloom.

The day before the summer school began, I stopped at the side of a small country road on the way to Puhtu. I stood before an imperial linden tree, which my map identified as a natural monument. Eight branches emerged from a single massive trunk like fingers splayed in a wild gesture. I guessed they must have been rising upwards in this

posture for centuries. The branches tossed their leaves into the air like the copious jets of a fountain, spewing out green cascades speckled with tiny blooming stars aglow with fragrance. The tree was not only a resplendent spectacle. Its fissured branches were covered with lichen and moss, and, to my surprise, decorated with flickering colorful ribbons and a new silk scarf that someone had obviously tied around a branch just a few days earlier. I suddenly realized: this is a holy tree! My musings were interrupted from time to time by a rickety old Pobeda or Moskvitch automobile passing by, kicking up a cloud of street dust.

There is no culture in the world in which trees are not worshipped as symbols of renewal — trees like the Persian Haoma, whose sap bestows eternal life; the Chinese tree of life that reaches a hundred thousand yards high; the Buddhist tree of wisdom, from whose four main branches spring the great rivers of life; Yggdrasil, the holy ash tree of the Norsemen, which holds the earth in a balance between the underworld and the higher regions by means of its trunk and its roots; Apollo's laurel; Aphrodite's myrtle. It is no wonder that trees were chosen to signify that which endures. Sacred plants in archaic cultures exhibit in themselves the cosmic progression of youth and propagation, aging and rebirth. Plants have become symbols that express the feelings of everything that is alive, creative and fertile and which must die. They are the naked avatars of carnal existence.

Unlike us self-conscious creatures of the animal world, plants do not know the shame of physiological intimacy. Their bodies have no functional inside. They are nothing but surface. They have no inner organs, only exterior ones. Flowers are naked in a much more profound and literally comprehensive sense than an animal could ever be. In contrast to all animals, which carry the bulk of their crucial organs enfolded within their bodies, plants have unfurled their functions to the outside, so that everything becomes visible — their respiration in the transparent green veils of the leaves, the history of their growth in the rising cascades of branches and twigs, and, most unashamedly, their unbridled sexuality in the overflowing ocean of

blossoms, seeds and fruits. From an unemotional standpoint a plant is a single oversized sexual organ. Apart from the narrow tubes that transport water and nutrients, they conceal hardly anything. Plants are inwardness enthusiastically offered up to the world. The feelings they present to other creatures might not consist of an inside as intensely differentiated as it is in animals, but on the other hand, the plant subject makes itself totally visible, palpable — and even readily edible. If the diversity of impressions that a flower conveys might be limited, the luxuriance of its expression is all the more intense.

THE PSYCHE IS A PLANT

Because plants are able to be so outspoken in enacting the drama of their existence, they exhibit precisely that which our own bodies obstruct from view. We basically know our bodies merely from the outside, as physical forms — from our gaze that wanders from our hands to our toes, from a quick look in the mirror, from touching our skin. Even the mouth, ears, anus and vagina are but entrances into an outside that just happens to be folded into the body. Our inner organs and how they work are more or less imperceptible. The normal tensions of our body related to being alive, the tension of our muscles, the tautness of our flesh, are only noticed when we strain them. Normally, an individual's essential life functions remain subliminal or invisible. The liver's action, the transforming labor of this most important of all metabolic organs, is entirely hidden from consciousness and sight. We can notice what the liver does, however, in the metamorphotic character of a plant that is continuously converting matter and light into a substantial body. That is why a plant can be regarded as our ladder down into the realm of the unconscious beneath all explicit cognition. The sight of botanical life processes, which present themselves with such open abandon, informs our own experiences as subjects. We can look to plants when we talk about our souls.

I am tempted to say that a plant's realm is the exact opposite of our inner lives. Unlike us, the vegetative world consists of pure physical bodies expressing the desire of living beings. But it would not be accurate to draw a strict line of demarcation here: The vegetative dimension includes us. Brain researchers estimate that unconscious cognitive acts account for 98 percent of human neural activity. For the psychologist C. G. Jung, the unconscious is not some virtual space inside or a form of ungraspable consciousness leading a purely mental existence separate and apart from the body and its swelling tides, as some people still tend to believe today. For Jung the unconscious is the body. As seen through the lens of a poetic ecology, this idea sounds uncannily contemporary. What thinkers like Jung interpreted as the unconscious, the new biology regards as the intrinsic subjectivity of the body that permeates the simplest cells. The body unconsciously knows by acting what is good for its continued existence, and what could be devastating. The body is able to show the suffering of the self, as becomes most acute in severe psychosomatic diseases like anorexia nervosa, or autoallergic sufferings like asthma or multiple sclerosis. But this expressiveness is a dimension that we can never grasp directly; it must remain forever mirrored by our moods and symbolized by our expressed desires and needs. We can only see it the same way we encounter the life of vegetation, through the psyche.

On this silvery evening all these ideas seemed self-evident to me. It is so obvious that life yearns to satiate every fissure and cranny of the cosmos with meaning, to insinuate all its creative passions into the world as a jeweller might fill an elaborate mold with gold. The insight hit me like a blow. If an organism's feeling is revealed by its outside, then the whole of nature functions as an interior — a space of meaning, a topography of inwardness, which is experienced as an outside. The mystery lay before me, and it was unfathomable — and yet at the same time as accessible as bright sunshine.

The external world, thus experienced in a mode of necessary imaginative connection, does not remain only external. It becomes a topography of meaning. To describe this interior dimension of lived reality, poets, not biologists, have invented the most apt terms. The poet Rainer Maria Rilke proposed the German term *Weltinnenraum*, which could be translated as "interior space of the world," or "world inscape." *Inscape* is a concept another poet, Gerald Manley Hopkins, used in the second half of the nineteenth century. For Hopkins, a deeply sensitive Jesuit priest, inscape was that which had form and meaningful expression at the same time. The *world inscape* is that dimension of the world which is not only spatial, but also filled with felt meaning. This space is the realm of poetry — but also of poiesis, of creation. It is the realm of organisms. They are all connected by the *conditio vitae* which is shared by everything alive. What unifies all experiences that can be expressed in this deep dimension is their felt value for the organism that wants to sustain and unfold itself. These values are not material, nor are they a set of optimal system parameters for life. They are the degree zero of all meaningful behavior, the desire to have a future. This desire is something symbolic, something that occupies no space but which is nonetheless able to move the heaviest weights with ease. The value of any encounter is its meaning for intensifying and prolonging the coherence of the self.

Over the centuries, humans have again and again made the mistake of seeing only one of these two perspectives, the inside or outside, at the expense of the other. For today's science there is only outside. Science pursues an ideal of mapping the outside onto everything inside, reducing everything to purely exterior physical relationships, including what we subjectively experience as inside. In the academic tradition of the humanities, by contrast, only the interior counts. In its view, even matter, or at least how we perceive it, is brought forth by interior mental acts, by society or by our language. This bias in favor of the mental and abstract sphere has a long tradition. Even the big monotheistic world religions take a one-sided stance when they

claim that in the beginning and in the end there is only logos, the word. They firmly embrace a dualistic picture and banish the body even though mystics at all times have tried to make space for body, feeling and the experience of living unity — a quest for which not a few of them had to pay with their lives.

How different religion would look if it did not accept this separation of inside from outside and did not assume that God created the world as an artisan creates an object. How much better to see the divine as transforming its essence into an unfolding, living cosmos that is the incarnation of subjectivity-becoming-matter — a subjectivity that needs the physical body and the joy and the suffering of innumerable beings, in order to experience itself.

In the contemporary worldview, we rarely try to integrate or reconcile these two extreme standpoints. We basically accept the deadlock of mind against matter. We consent to combine them in a technically and economically useful way, but also in an emotionally deadening manner. Inside is "us"; outside is the whole messy remainder of all that is; and each is separate. This worldview only became possible because we agreed to split the world into two opposing dominions that never overlap and whose delicate equilibrium is ignored. By compartmentalizing the world in this way, scientists are granted a license to do as they please without needing to account for lived experience as both body-mind and feeling-matter. They do not have to acknowledge empirical anomalies and inconsistencies because the stipulated ontological split of body-mind preemptively renders such complications moot. When the focus is purely on the relationships between material particles, external relationships are all that is seen; the interior, the psyche, is invisible and inconsequential. Thanks to an a priori agreement about ontological terms, separating body and mind and matter and subjectivity, manipulation and value-free research and experimentation can roam free. Correspondingly, the specialists of the human interior, from social scientists to artists to poets, have forfeited any authority to judge what goes on in the realm of "pure matter." And everyone is happy.

The non-scientists and humanists seem to regard this amicable division of the world as the best that can be done. A great many of them have accepted the scientific worldview that life is bereft of meaning, values and goals. They have convinced themselves that, in any case, we are trapped in the mirages of our language and cannot make relevant statements about reality. The rejection of the material world which produces meaning on its own accord reaches such a radical extreme that many linguists today believe that we can experience a feeling only if we first know a term for it. We can feel only what the language game allows us to express. But this is never able, many think, to reveal anything about reality.

All this leaves out existential experience, which can only happen within living, sensitive flesh. Such experience is not arbitrary or conjectural; moreover, it can be shared with any other living being. How strange that this realm of empirical phenomena — the delicate breathing web of nature — is an orphan subject that neither of the two scientific cultures of our world, the hard sciences and the humanities, can comprehend with their brands of rationality. Still, the truth of life is there. It is not difficult to find because we carry it within ourselves, in an inescapable middle ground — inescapable, because matter is not able to be real without feeling.

The German biologist Gustav Theodor Fechner, who held an influential position at Dresden University in the nineteenth century, had a beautiful way of describing the dialectics of inside and outside. For Fechner the world has both a dayside and a nightside. Surprisingly, according to Fechner, the dayside is not the reality of our physical bodies moving about in the world as physics describes it, but our own inner experiences and perspectives. Fechner considered the scrim of abstract science as the nightside — the dark exterior which obstructs our perception of reality. For him, only our inner experience of our material bodies and our feeling of self are real, and they are the only way to truly understand the character of the world. The logic is quite simple. Organisms are inextricably a part of this integrated reality, which itself is experienced from the inside and

outside at once. Only in we living organisms is the full character of reality completed. Only here, in the expressive meanings of a material body, can that which exists experience itself as such.

I had left the forest and returned back into the open, walking in a long arc. I had to pause in awe for a few moments. On the pastures, innumerable white anemones, their hairy stalks receding into the distance, were looking across the sea toward the horizon where the sun had set. The light seemed like it did not want to go. Everything shimmered softly, a last fluorescence that stubbornly hovered in the air. Cove after cove was immersed in the white foam of the anemones. At the furthermost tip of land before it sank into the sea, the Earth had cloaked itself with beauty beyond measure.

The next day I woke up early, well before six, and the landscape was already inundated by full daylight, pouring through the blue curtains. The warm room smelled of old wood and linoleum flooring. I got up quickly and walked on the narrow path to the beach. The water lay as still as if it was a solid surface. When I waded into it, the chill at first took my breath away, but it became more tolerable when I had done some strokes. My hands dipping into the water sent out a small wave, splitting the liquid mirror and giving it a structure and momentum. The process reminded me of the physics theory that claims a first, small asymmetry in reality triggered the Big Bang and gave shape to the cosmos. The sky's brilliant orange and blue flared between my fingers. I turned back my head. The boulders on the shore reclined across the landscape like an endless ellipsis.