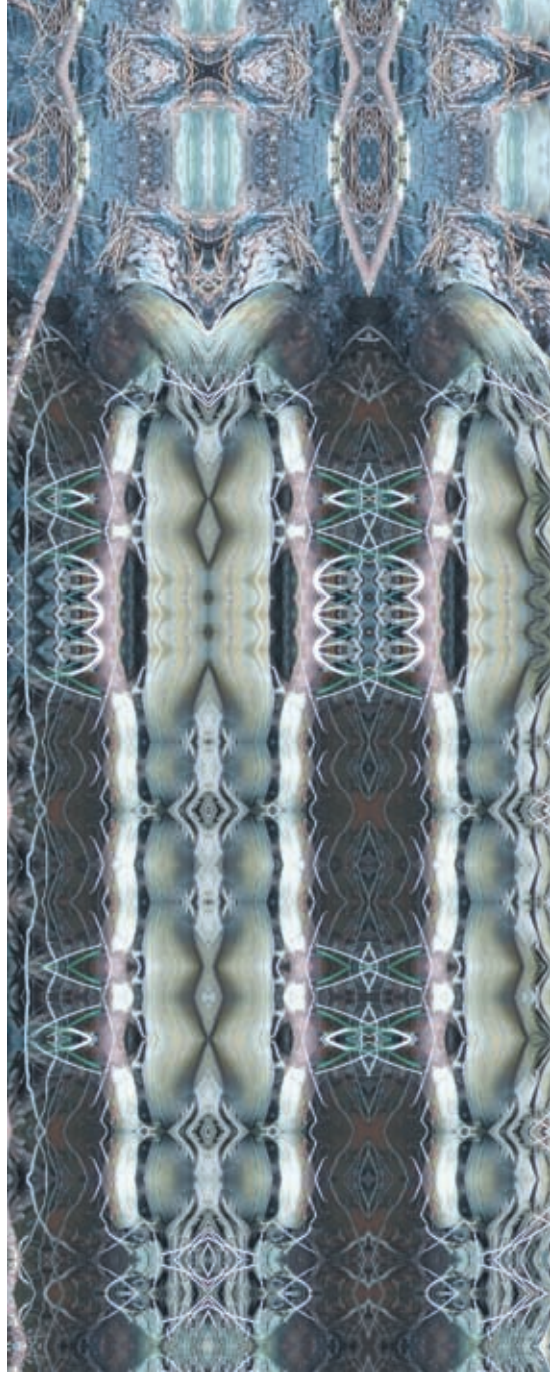Fairness in a Finite World
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VOLUME 20

Toward Global (Environ)Mental Change

Transformative Art and Cultures of Sustainability

By **Sacha Kagan**

TOWARD GLOBAL (ENVIRON)MENTAL CHANGE

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Transformative Art and Cultures of Sustainability

By Sacha Kagan

Edited by the Heinrich Böll Foundation

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PREFACE

To influence the politics of the future is a high aspiration. The Heinrich Böll Foundation wants to contribute to its design and, therefore, supports visionaries and pioneers of social and ecological innovation worldwide. Artists are special agents in this urgently needed cultural transformation process toward cultures of sustainability. Such a paradigm shift implies reforming our ways of knowing and acting upon our knowledge of reality.

No longer is art just a means or a medium; it has the potential to be the active process of interdependences between different dimensions of human crisis that draws us into the search for pathways to a post-fossil fuel age, and on to a new era of human development based on an aesthetics of sustainability. It is the intuitive and transformative power of art that we need to explore and bring to full bloom.

Therefore, in cooperation with many like-minded partners the Foundation has organized the conference, *»radius of art« Creative politicization of the public sphere – Cultural potential for social transformation,* in Berlin on February 8th and 9th 2012, and it has invited Dr. Sacha Kagan to write this essay as a catalyst for discussions during and beyond the conference.

His essay provides delightful insights for any open minded reader, ready to get inspired and irritated at the same time; to break away from the accustomed pattern of thought and habitual mental data processing trajectories – as well as standard vocabulary. This essay yearns to be read by those who are experimentally minded and curious; readers who wish to escape the ivory towers of theoretical contemplation, and practice hands on activism to transform ideas into spirited and vivid projects.

From the perspective of the transformative power of art, this essay was conceived as a twin contribution, complementing the essay by the German social psychologist Harald Welzer, *Mental Infrastructures – How growth entered the world and our souls,* that was also published in this series. It equally aims to derail frozen habits, social conventions and inherited "mental infrastructures".

I'd like to present as imperatives, and bring to the readers attention, some key issues elaborated in this essay that very much resonate with the work of the Foundation:

Overcoming dichotomies

- Beyond the body and mind dichotomy, lie opportunities for embodied learning!

- Beyond the State and market dichotomy lie opportunities for community empowerment and democratic practices of commons-based governance and self-organization!
- Turning the fundamental dichotomy between nature and culture into an understanding of *NatureCulture*'s complexity is an aesthetic and ethical imperative!
- An approach to NatureCulture's aesthetics, also requires a careful, sensible and differentiated consideration of the uses and experiences of technologies!

Use of technology

- We need technological innovations toward cultures of sustainability!

BUT
- We should be aware of a narrowly purpose-oriented rationality. It short-circuits a complex reality, and it ignores most of the side-effects of human enterprises!
- And technology-mediated experiences can contribute to modern humans' numbed experience of NatureCulture!
- Technologically mediated aesthetics can, in some cases, add something more, and valuable, to our perception of complexity. A careful and reflexive, critically aware, but also open-minded, attitude towards techno-aesthetics is warranted.
- The globally interconnected "technosystem" is giving us the impression that it is, perhaps, capable of replacing or repairing our planet's natural environment, that are the ecosystems and the global biosphere. This is a dangerous illusion!

Culture of linear thinking

- Challenge linear problem-solving as the traditionally advocated methodology of planning schemes, including the local Agenda21 processes, (that attempt to formulate a vision, diagnose the problems and assess the risks, then develop alternatives, and finally implement and execute)!
- Apply "question-based learning" (David Haley) instead, that is a capacity to ask, again and again, wider questions, and thereby to reframe the problems in new ways. Avoid being trapped into the path-dependency of pre-established problem-definitions!
- The belief in growth and linear progress convey a linear, fragmented experience of reality, which fuels the mainstream contemporary culture of unsustainability!

Recognizing complexities

▬ "We must learn, not to be afraid of complexity!" (David Haley)
▬ We need to heal from modernity's habit of atomization, fragmentation and reductionism!
▬ We need to overcome rigid modes of thinking, including the disciplinary silos and hierarchies of thought, in order to combine various fields of action and perspectives!
▬ Challenge the notion and culture of "clear" concepts and definitions and the search of science based "objective truth"!
▬ Resilience necessitates the preservation of diversity, both biodiversity and cultural diversity, as a pool of serendipity allowing us to learn from the unexpected!
▬ Aesthetics is the sum of all our perceptions for understanding complex systems. It is not an exclusive realm of art, but should be re/claimed by each and every one of us!

Embracing "queer ecology"

▬ A queer ecology, as opposed to a straightforwardly harmonious culture of nature, can contribute to our sensibility of uni-plurality. This is an aesthetic question!
▬ Queer ecology is an antidote to holistic ideals of consensus and organic unity that might breed green (or other) forms of totalitarianism. We should, therefore, seek discourses and practices that value pluralism, contestation and tensions, compromising of peer to peer production sensitive competition!

I hope these excerpted imperatives raise the appetite for more reading.

I would like to thank Dr. Sacha Kagan for his very passionate work on this essay and his great contribution to the conference. I am, also, very grateful to Dr. David Haley who has engaged us both in a constructive and challenging exchange in the editorial process of this publication.

Berlin, January 2012

Dr. Heike Löschmann
Head of Department for International Politics
Heinrich Böll Foundation

INTRODUCTION

Toward Global (Environ)Mental Change

The global crisis of unsustainability is not only a crisis of the hardware of civilization, it is also a crisis of the software of minds. The search for a more sustainable development in the 'developed' world has, so far, been focusing too much on hardware updates, such as new technologies, economic incentives, policies and regulations, and too little on software revisions, that is *cultural transformations* affecting our ways of knowing, learning, valuing and acting together. The cultural software is, nevertheless, at least as much part of the fundamental infrastructure of a society as its material hardware.

We need a *global (environ)mental change*, that is a transformation process to affect the many relationships between our minds and their environments. There are several environments to the conscious mind, such as the subconscious, the shared culture(s) and the natural environment. They are not all just environments, but also part of our minds. This is a bit like a hologram: Each part of the hologram contains some information about the whole. Each human mind echoes elements from its environments, and is connected to them in many ways.

Global (environ)mental change will highlight *complex interdependences* and will teach us, not to be afraid of these complexities. This requires a movement away from our *culture of unsustainability* which is hindering our grasp of these interdependences (part 1).[1]

Some changes are already underway, affecting lifestyles in daily practices, as several social-cultural movements across the world are illustrating. The spread of the commons, transition towns, permaculture and right to the city movements bear some promises for a cultural transition (part 2). Certain types of artistic practices and experiences of art also bear great potentials to reconstruct the software of our minds (parts 3 and 6).

Among the cultural categories that need revision, is our modern, Western understanding of "nature". Instead of a nature/culture dichotomy, global (environ)mental change induces us to think in terms of a dynamic NatureCulture complex (part 4). Some other dichotomies also need revision, such as markets/ State and mind/body (part 2).

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1   Many of the themes and topics which are only shortly discussed in this essay, are analyzed at more length in the book *Art and Sustainability: Connecting Patterns for a Culture of Complexity* (Kagan 2011).

To help us face complex interdependences, I am suggesting that we foster our aesthetic sensibility to complexity (part 5). And to help us learn and experiment sensible ways out of our unsustainable lifestyles, I am suggesting that we foster serendipity and learn to induce profound changes in society not with spectacular actions but with subtle maturation (part 7).

The need for a
cultural transformation

I, as a West-European, am living in a so-called 'developed' country. This country is highly industrialized. It has a hyper-developed consumer culture and a high level of material wealth. However, the sort of development and material welfare that we are comfortably experiencing, for example in Germany, is being criticized from many angles, as being *unsustainable*. How so?

Many authors have described at length, why our mode of 'development' is not sustainable. Be it the global ecological crisis or the unfair 'terms of exchange' between the global North and the global South, most of the available analyses have been focusing on economic, social and/or environmental dimensions of a global crisis of unsustainability. I will not be repeating those analyses once more.

Relatively less attention has been given to the cultural dimensions of unsustainability. However, with a bit of attention to the writings of various philosophers and authors from the 20th century, one can find several insightful critiques of the Western model of civilization. For example, in the German intellectual tradition, Max Horkheimer and Theodor Adorno's *Dialectic of Enlightenment* have been especially significant. More recently, the Polish sociologist Zygmunt Bauman brought up a harsh critique of contemporary individualism and consumerism: He analyzed the trade-offs of the kind of 'freedom' we're experiencing in an age of *Liquid Modernity*. But I will not be offering a history of these critical insights, either, in the following lines.

I prefer to focus on one major dimension of the contemporary culture(s) of unsustainability: the problematic character of modernity's dominant modes of knowing reality. That is to say, how we know the world around us to be the way we think it is – and how we act upon such knowledge.

Already in the 1960's and 1970's, the anthropologist, psychologist, ethologist and co-founder of cybernetics, Gregory Bateson, warned against the excesses of 'purposive consciousness'. That is, a technical-rational, narrowly purpose-oriented rationality. As a "bag of tricks", it is 'problem-solving' oriented, and it brought many advantages to the Western world, such as fast technological developments. But it has seriously harmed our knowledge of the world: purposive consciousness sees only shortcuts. It short-circuits a complex reality, and it ignores most of the side-effects of human enterprises.

For example, the ecological consequences of economic activities were, for most of the industrial age, simply ignored. Relatively recently, as they became increasingly hard to ignore, these unpleasant side-effects were re-introduced as 'externalities' to be 'internalized' into economic models – but this is, by far, not enough. We need to learn to know reality in a way that allows us to better understand *complex interdependences.* This is why we should pay more attention to Bateson's warnings: "Purposive consciousness pulls out, from the total mind, sequences which do not have the loop structure which is characteristic of the whole systemic structure" (Bateson 1973: 410). In other words, purposive consciousness is quite insensible to *interdependences.*

The development of purposive consciousness has numbed the intuitive and metaphorical sources for a knowledge of the many connections between different aspects of our reality. Gregory Bateson gave an evocative name for the sort of expanded consciousness that we are lacking: He called it "the sensibility to the pattern which connects".

According to the American phenomenologist David Abram, the numbness of a large part of human knowing-abilities, developed itself gradually over many centuries of European history, before conquering wider parts of the world with modern European colonialism. Modern societies have suffocated a whole dimension of the human sensibility, which was and still is vibrant among some indigenous peoples: the sensibility to the intelligence of the non-human, and the capacity to bridge perceptions with the non-human. (By "non-human", I mean the environment's complex and dynamic webs of life.) We need to re-discover this reflexive sensibility.

Purposive consciousness allows us to perceive only straight cause-effect lines. This linear causality explains reality in terms of single lines of causes and effects, while systemic causality reveals feedback loops – that is to say, cycles where effects feedback on causes in multiple ways. Linear causality cannot account for the multiple mutual relationships characterizing complex interdependences. The general trend towards simple, linear causality still remains widespread, but it has already regressed in some areas of scientific knowledge, most especially in cybernetics and ecology. A systemic culture has been emerging for several decades already, in these specific fields of science. It is championed by authors such as the American physicist Fritjof Capra, who is advocating for "ecological literacy", but such a literacy remains insufficiently widespread across society.

Next to the atomization of knowledge brought by linear causality, another, related aspect of our culture's highly developed form of self-closing and self-deception, is the fragmentation of human understanding across disciplines, and across social sectors. The German sociologist Niklas Luhmann described this situation in most bitter details. With his adoption of the key concept of "autopoïesis" from the evolutionary theories of Humberto Maturana and Francisco Varela, Luhmann described how modern societies are locking themselves in this direction, making it increasingly hard to change course. He described our society as one in which social "systems" (such as the economy, politics, science, art, etc.) gain more and

more autonomy from each other and from the rest of the world, and increasingly develop themselves on their own terms: They adapt their environments to their own developmental programs. They are acknowledging environmental "irritations" only according to their own internally developed logic. They do not adapt themselves to their environments very well anymore. In short, the development of modern society, as described by Luhmann, is ultimately unfit for survival, from an evolutionary perspective.

We have come to forget that ecosystems are also part of our mental systems and of our social systems. A cultural transformation is, therefore, needed in the search for more sustainable models of human development.

Signs of cultural transition

If sustainability is to be understood as a search process, then it should address all dimensions of unsustainability, including its cultural dimensions. From a cultural perspective, sustainability can be understood as the search for alternative sets of values and knowledge of the world, reforming the ways we know reality, thereby founding an understanding of "patterns that connect" the economic, social, political, cultural and ecological dimensions of reality. The cultural dimension has thus a foundational value for the whole search process of sustainability.

Culture expresses itself as much in our daily lifestyles as in specific symbolic forms of human expression such as the arts and literature. At the level of everyday lifestyle changes, a number of contemporary trends are pointing a possible cultural transition, by experimenting with possible ways out of unsustainability. Several commons-based social practices are especially interesting, from this perspective: among them are the "transition towns" and "right to the city" movements, the life-art of "Buen Vivir" in Latin America, and practices such as urban gardening, which are expressing different, but complementary dimensions of cultural transitions toward more sustainable forms of social organization.

The "commons" are expressing another economic culture than the dominant one, with a different language and logic than the Markets/State duopoly. This allows rediscovering the value of commonly managing precious natural and cultural resources, in caring, and careful, communities. It unearths and updates some deeply buried knowledge, about collaborative forms in the management of land, of intellectual property, and of other 'commons'. It may even manage to function as a antidote to several decades of neoliberal economic policy that imposed market-logic in all areas of life: The logic of the Markets/State dualism is offering no space besides the Market's principle of individual freedom and individual choices, thereby marking a balance between self-interest and personal Bourgeois virtues, or the State's principle of an institutionalized collective order imposing just arbitration, as in the form of redistribution or of a top-down, planned economy. In such a logic, communities cannot be trusted to manage things themselves, as explained in the myth of the so-called "tragedy of the commons". On the contrary, the commons movement is heralding and supporting bottom-up self-management by communities, reinvigorating the numbed collaborative virtues of modern individuals.

The "transition towns" movement started as a single, bottom-up initiative, a few years ago in Totness, UK. Since then it has been spreading across the UK

and internationally, at a fast pace, across urban neighborhoods. This movement stimulates bottom-up citizens-based initiatives for living more sustainably, or more specifically, for living a lifestyle liberated from our addiction to oil. This goal to move away from fossil fuels, is motivated both by global climate change and by the expectation of "peak oil". That is, fossil fuels are non-renewable resources and will not last indefinitely. Past a certain "peak oil" point, our societies will experience a harsh withdrawal phase, after many decades of addiction. The transition towns participants do not wish to wait until this deep crisis is at their own doorstep.

Each transition town has to develop its own experiments, and the overall movement does not give recipes to be applied universally. A general principle of the transition towns, and of the commons movement too, is that local communities should find their own solutions, collaboratively.

The "right to the city" movement is inspired by the writings of the French urban sociologist Henri Lefebvre. Through direct action, it is motivating and empowering the inhabitants of urban neighborhoods to exercise, in a radical way, their right to determine the fate of their own city. It especially encourages all inhabitants to take part in decisions about urban developments, resisting the powerful interests of real estate investors and city developers. The "right to the city" movement especially empowers the tenants, in urban neighborhoods. Even though these members of the community do not hold individual property rights over their place of residence, they should be able to co-determine, and to take responsibility for the place where they live.

The notion of "Buen Vivir" comes from South America. The expression is not new, but has gained in popularity in the past few years. It relates to a variety of practices and worldviews with diverse indigenous roots, which are inspiring contemporary social movements and politicians across that continent. The different contemporary discourses around the notion of "Buen Vivir", whether more philosophical or more political, are pointing at possible alternatives to strictly materialistic notions of wealth and happiness. In doing so, they contribute to re-setting the criteria for good life, and rethinking development policies on different bases. They are asking questions which are relevant not only to their own contexts, in South America, but also to ours, in Europe.

These are some very fundamental questions: What is a good life, and what does it mean to live well, together? Which kinds of wealth would a sustainable society strive for? The question of the "true source" of wealth is of course not exclusive to any specific culture or time period, neither South American, nor European, nor modern, but it expresses itself in a myriad of ways. And the way the question is asked, already determines which kinds of specific answers are then formulated in different societies. In Europe, the old-modern belief in a constantly growing material economic wealth as synonymous with a 'good & desirable life', is an integral part of our culture of unsustainability. And we'd better get inspired by other perspectives on good life, from across the world.

Another sign of a possible cultural transition is the growing popularity of practices such as urban gardening, guerrilla gardening, and urban bee keeping. Urban agriculture is not a new phenomenon, and it has been practiced time and again, during crises, wars and other difficult periods across history. Nowadays, however, these practices are finding an increasing following, even in rich urban centers in North America and Europe. This may be just a short-lived trend for some of its practitioners. But it may also have a deeper value, expressing an existential need to reconnect to their own body and to the natural environment, in a concrete and meaningful way. In any case, urban gardening potentially gives its practitioner the opportunity to (re)discover concrete, down-to-earth, opportunities for embodied learning.

In everyday professional lives, we usually over-stress the analytical left side of our brains, and neglect the sensitive intelligence from the right side of the brain. As a result of our tedious learning habits, we cannot even remember a shopping list in the supermarket. The regular practice of urban gardening may be a form of self-help, to heal this condition. "Embodied learning" means healing from the dualistic notion of body and mind, which has been prevailing in modern Europe. Embodied learning stresses that we can better know the world around us, when engaging our whole body into learning experiences.

Urban gardening is also sometimes informed by the principles of "permaculture". Inspired by systems ecology, agroforestry and organic farming, it rethinks human agriculture and human settlements/habitat. As coined by its co-founder, Bill Mollison, permaculture aims to shape self-sustaining systems integrating human activities with their non-human counterparts, and sees itself as "a philosophy of working with, rather than against nature".

The arts may also play a fundamental role in the cultural transformation process towards cultures of sustainability, most especially in reforming our ways of knowing and acting upon our knowledge of reality. This is for example already the case with the practices of "ecological artists". How so? The following pages will aim to explore this question further.

Of bananas, workers, crabs and artists

What do I see, when I see a crab or a banana in the supermarket?

We're constantly dealing with *interdependences*. This is all the more important, in an age of globalization. For example, the working conditions of banana growers in the Caribbean islands and the health of these islands' ecosystems, are related in specific ways to global trade regulations and to the consumers buying bananas across the world.

To address the global crisis of unsustainability, we need to see these interdependences between different dimensions of the crisis and to understand in which vicious cycles we're engaged. We need to derail frozen habits, social conventions and "mental infrastructures" – as coined by the German social psychologist Harald Welzer. We should allow ourselves to experiment with, and feel the experience of alternatives. One meaningful and inspiring way to do all three (seeing, understanding, and experimenting/improvising alternatives), has been developed for the last four decades by people known as *ecological artists* (or eco-artists).

One such person, Shelley Sacks, looked closer into the interdependence between bananas, workers and consumers. She started by drying banana skins and collecting them in the early 1970's in South Africa. She was wondering about their producers and reflecting on the economic networks involved. In the 1990's, then living in the UK, she started a project entitled *Exchange Values: Images of Invisible Lives*. She purchased many bananas, dried them and stitched them together, turning them into large dark sheets. She then labeled the sheets with the "grower identification number" of the crates from which they came. She went to meet and interview the farmers who cultivated those very bananas, in the Caribbean Windward Islands. She organized meetings with people both on the consuming end in the UK (while collecting the skins and inviting people to eat the fruits) and on the producing end. In both cases, the discussions dealt with interdependences and echoed some principles of 'fair trade'. Sacks also organized such meetings alongside an art installation (exhibited in various art museums) constituted of both the sweet-smelling banana-skin sheets and the voices of their producers, talking about their rather bitter living and working conditions.

According to Shelley Sacks, the experience of her art installation has a transformative value: "Although the consumer standing listening to the voice of the

invisible producer is not, in that moment, involved in changing the status quo in any concrete way, responses suggest that the experience of absence is so tangible – of a producer whose 'skin' is stretched before us, whose voice is inside us – that it stirs one imaginatively, provoking an inward movement that we carry outwards into the world. People describe how the experience has given them a sense of their power to see things differently, and to explore ways of getting involved in shaping a better world."[2]

Good examples of ecological art link specific multi-dimensional issues – that is issues that combine ecological, social, cultural, political and economic dimensions, with each other. They investigate and bring to visibility, the relationships between humans and others (animals, plants, etc.) *here and now* on the one hand, and *then and there* on the other hand, that is in the short term and the long term, from the local to the global. They point us at some of those *interdependences* that need to be kept in sight, and they experiment, improvising openly around the issues. They do not do these things as lonely heroes, but rather, they strive to shape and share common spaces for wider communities to explore and change situations: Ecological art adopts the collaborative principle that I already evoked when discussing the commons and transition towns movements.

Another couple of such practitioners dealt not with bananas from the Caribbean, but worked with a species of crabs from Sri Lanka, in a twelve years long process which established them as leading figures of eco-art: From 1972 to 1984, the US-American artists Helen Mayer Harrison and Newton Harrison worked on their *Lagoon Cycle*, combining an artistic inquiry with a thorough scientific work on the complexity of ecosystemic conditions necessary for sustaining the breeding cycle of these crabs, under artificial conditions in California. The Harrisons' learning cycles were turned into the text and images of the *Lagoon Cycle*, which is at once, a book, an art exhibition, and is sometimes also performed by the Harrisons.

The story of the *Lagoon Cycle* unfolds around an exchange between two main characters: the "Lagoon-Maker" proposing technological solutions for ecosystemic restoration, and the "Witness" critically assessing and questioning these proposals. They visit Sri Lanka, learning about the country and asking local fishermen about the crabs. The Lagoon-Maker is eager to import the crabs, these "hardy creatures" that are surviving even under tough conditions, back to California, and to re-create their living conditions. However, this proves to be difficult, and the Lagoon-Maker dreams on, and soon wants to develop large-scale crab-aquaculture systems which also would clean up the Salton Sea in California. Confronted by the scale of the Salton Sea ecological disaster, the Lagoon-Maker even imagines a gigantic system of canals, to flush the polluted waters into the Gulf of Mexico and the Pacific Ocean. However, the Witness alerts the Lagoon-Maker to the consequences of their dreams, and together they realize

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2   Shelley Sacks: Exchange Values Six Years On, 2002, available online at www.exchange-values.org

that displacing water pollution from the Salton Sea to the Pacific Ocean would be a short-sighted, foolish action.

Along their quest for understanding and control, the two main characters encounter several other difficulties, as well as very peculiar third characters, who constitute ideal-types characterizing the Sri Lankan society and culture, as well as US American /'Western' society, the working of a market economy, and the rigid perspectives of some capitalist and Marxist discourses. Among other things, they learn to appreciate the culture-in-nature of Sri Lanka, by contrast to the culture-partly-apart-from-nature of the contemporary United States. Their learning cycles weave together the patterns of ecosystemic, socio-economic and technological complexities in both countries. Faced with global climate change, the *Lagoon Cycle* ends with a poetic vision (written in the early 1980's) of the potentially graceful withdrawal of humanity, along the shores of oceans and rivers.

Shelley Sacks' work on bananas and the Harrisons' adventures with crabs are two highlights among a growing number of exemplary cases of ecological art. Often, eco-art projects also involve concrete interventions and inventions, with local and regional ecological restoration, and community empowerment. According to a common statement written by the 'ecoartnetwork', an international network of eco-art practitioners, ecological art "embraces an ecological ethic in both its content and form/materials. Artists considered to be working within the genre' subscribe generally to one or more of the following principles:

- Attention on the web of interrelationships in our environment—to the physical, biological, cultural, political, and historical aspects of ecological systems.
- Create works that employ natural materials, or engage with environmental forces such as wind, water, or sunlight.
- Reclaim, restore, and remediate damaged environments.
- Inform the public about ecological dynamics and the environmental problems we face.
- Re-envision ecological relationships, creatively proposing new possibilities for co-existence, sustainability, and healing."[3]

Eco-art, in its best moments, is not only a means of awareness-raising and community mobilization: It also improves our sensibility to the complexity of the world around us.

We will indeed not manage to deal with complex interdependences, as long as we keep seeing them only through the lens of the modern dichotomies we have acquired as habits of thought. Beyond the body and mind dichotomy, lie opportunities for embodied learning. Beyond the State and markets dichotomy,

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3   Source: internal communication on the 'ecoart' network mailing-list, in preparation for eventual wikipedia entries (November 2011). See www.ecoartnetwork.org for more information about this network.

lie opportunities for community empowerment with the shared management of commons. Another fundamental dichotomy which is clouding our understanding of reality is the one between nature and culture. To move beyond this specific duality, we need to learn appreciating the value and vitality of *Nature-Culture*'s complexity.

NatureCulture: The beauty of dynamic complexity

"Nature" is that which is already there, both "out there" and "deeply within", from a certain perspective at a certain point in time. At the dawn of life on Earth, "nature" on our planet was a physical and lifeless but already complex environment. At the dawn of humanity, "nature" was a rich biosphere, i.e. a complex ensemble of ecosystems and geo-chemical cycles.

"Culture" is most often related to the specific development of the human species, although some ethologists have identified forms of "proto-culture" especially among apes such as the Bonobo. Across the hundreds definitions of culture available today, many stress both culture as a society's set of shared values, views, and understandings, and culture as the set of practices and rules/conventions shaping ways of life in a society. Cultures materialize themselves into various physical objects and landscapes, from the 'wild' to the pastoral, and the rural to the urban. Historically, the evolution of human cultures has been co-determined by ecological contexts. But in return, cultures have also been modifying "nature", co-determining the further evolution of the ecosystems in which human societies established themselves. Today, for human beings and many other species, nature has become tightly interconnected with a variety of human cultures.

Nature never was in a fixed state, but has known, since the beginning of our universe, before the beginning of life, a rich and surprising evolution. For example, the formation of stars allowed the generation of more complex matter than existed before then. Evolution makes improbable things come to existence.

So are human cultures on the move too, developing themselves in multiple directions, at times compatible with their environments, and at other times bringing forth their own eventual collapse.

Seen from a very wide perspective, whether in human cultures, in life on Earth, or in the whole universe, "only the improvisation remains constant" (as the Harrisons wrote in their *Lagoon Cycle*).

"Nature" is that which is already there. Today, that which is already there, is however better understood as 'NatureCulture'. It makes little sense to continue perceiving "nature" and "culture" as two clearly separate entities. We need to heal from modernity's habit of atomizing, fragmenting, reducing complexity by means

of supposedly "clear" concepts and definitions. The time has come to appreciate the beauty of NatureCulture as originated in the vitality of its complexity.

But what do I mean by complexity, and what does it have to do with vitality? Complexity was magnificently studied and introduced by the French philosopher and 'transdisciplinary' researcher Edgar Morin, in his lifetime work *la méthode*. Morin introduces the possibility to think unity and diversity alongside each other, and to think about any pair of terms, with a combination of *unity*, *complementarity*, *competition* and *antagonism*: These 4 types of relationships, through their complementary tension, are altogether forming a genuinely *complex relationship*. For example, the relationships between a predator and a prey are involving of course antagonism (which leads to the predator's starvation or the annihilation of the prey), but also complementarity (preys and predator depend on each other for their species' survival), competition (with each side developing tricks to fool the other side and obtain decisive information; and with competition among predators / among preys) and unity (taken together, predator and prey are united in forming and maintaining an ecosystem).

To understand complexity, we need to think of those 4 types of relationship together, rather than separated from each other, and we need to avoid both the simplification of reductionism, limiting us in the western modern tradition, and the simplification of holism. As Morin pointed out, "the whole is more AND less than the sum of its parts":

Reductionism ignores that the whole is more than the mere combination and inter-relations between the parts it is constituted from. Reductionism ignores what scientists nowadays call the "emergence" of a new level of reality. Instead, complexity means that emergence brings jumps in reality, with discontinuities in logic.

The second simplification ignores that the whole is also less than the parts. The whole suppresses certain properties of the parts, imposing overarching rules and constraints.

Across different levels of parts and wholes, we need to learn to appreciate the contradictions between different logics, and to acknowledge the great level of ambivalence, uncertainty, and indeterminacy that we have to cope with, in our lives. This is neither easy nor comfortable, but it is necessary and vital. Since the summer 2010, ecological artist David Haley thus keeps repeating to his audiences this one sentence: "We must learn, not to be afraid of complexity!"

Why is complexity crucial to vitality? Because vitality, that is life's continuous renewal through transformations, is driven by constant improvisations, with trial-and-error cycles, and it is feeding on a diversity of alternative options. "Only improvisation remains constant" and there are no fixed recipes for evolutionary success. Therefore, vitality depends on "resilience". Resilience refers to a system's capacity to endure, withstand, overcome, or adapt to changes from the "outside" or from the "inside". In other words, resilience points to the ability to survive on the long term by transforming oneself in relationship to one's environ-

ments. Resilience necessitates the preservation of diversity, both biodiversity and cultural diversity, as a pool allowing us to learn from the unexpected.

The French scholar Michel de Certeau wrote about the work of the Harrisons that "art is what attention makes with nature". However, paying attention to CultureNature's dynamic complexity is of course not reserved for ecological artists alone. The internationally acclaimed gardener Gilles Clément, for example, understands gardens, nature and life in general, as constant transformation. His work also conveys a view of nature that is neither the dominated and alien nature of modernity, nor a sublime and virgin nature that humanity would not touch. His view of nature is pointing to a great diversity of species and interactions that includes humanity's peculiar responsibilities and seeks partnerships. More specifically, Clément's gardens reflect three key ideas articulating his understanding of CultureNature: "moving garden", "planetary garden" and "Third Landscape".

The "moving garden" (jardin en mouvement) is inspired by Clément's observations of fallow land, or formerly used land that has been neglected for some time by humans and left to the free colonization by various species of plants and insects. In it, the gardener's role is not to control these species and constrain them into geometric patterns conceptualized a priori. The gardener's role is rather to observe the evolutionary interactions between these species, learn from them, interpret them, and then intervene with the goal of fostering dynamic balances between species, and most importantly, of increasing biological diversity. Clément's motto is: "To do as much as possible *with* – as little as possible *against*".

Such a gardener spends more time observing, less time gardening. She or he does not design a garden and then implement it, but learns while doing, in an *iterative*, or trial & error process. Dynamic rhythms matter more than fixed aesthetic forms. For example, in many of Clément's gardens, the gardener allows and accompanies the plants' displacements through the garden, and does not try to constrain this evolution. If a plant grows in the middle of a pathway, it will not be cut. Rather, the visitors paths will change every year, adapting to the changes brought by the movements of different plants.

With the "planetary garden", Clément considers the whole planet as a garden and ponders over the gardener's responsibilities. For example, he is opposed to a fundamentalist view of the defense of indigenous species against invasive species, based on too-rigid, static views of nature. As Edgar Morin argues, ecosystems also evolve, and as Clément argues, migrating species should be judged according to their observed behavior, not according to their origin (and the same applies to people too, by the way). On the one hand, certain invasive species threaten the biodiversity of entire ecosystems, but on the other hand, some invasive species can stimulate evolutionary transformations. It is therefore on a case-by-case basis that the gardener should carefully try to evaluate the (de-)merits of specific species, playing the role of a matchmaker between different species of plants, insects and animals. Gilles Clément explored the theme of the planetary garden

especially in the "Domaine du Rayol" in the Var, on the French Mediterranean coast, on a 20 ha site, looking into ecosystems typical for the Mediterranean climate, and its variations across the world. The role of the forest fire to promote biodiversity was, also, considered.

The "Third Landscape" (by reference to the "Third Estate" in France's Ancien Régime), is the sum of all the spaces which are left to themselves: fallow lands, industrial waste sites, road sides, embankment slopes, and nature reserves. Clément points out that these landscapes are the world's biodiversity reserve, a gene pool for the planet's future. Stressing the importance of the Third Landscape, the gardener also wants to convince policy-makers to leave spaces for the undecided, the unplanned. The Third Landscape was visualized in one realization by Clément, the "île Derborence" in the midst of the "parc Matisse" in the French city of Lille: 3500m² which are elevated 7 meters above the rest of the park, inaccessible to the human visitors but at the same time very much visible and present.

With his gardens, Clément does not praise some sort of postmodern disorder, or some superficially romantic garden. Rather, he is showing the highly complex play of order and disorder, organization and disorganization and reorganization, in his moving gardens. In this, he is very much the gardener counterpart to Edgar Morin's theoretical elaborations on the complexity of life. Clément is interested in genuine spontaneous natural processes and in his chance partnerships with them, whereas many romantic gardens re-create a mere illusion of spontaneous nature, hiding themselves as human interventions.

After eco-art and moving gardens, I will turn to another exemplary domain: To see NatureCulture's dynamic complexity under yet another angle, a specific perspective on sex offers its insights. "Queer ecology", which was born a decade ago at the crossings of queer studies and ecofeminism – itself a meeting of feminism and the environmental justice movement. Queer ecology focuses on NatureCulture's incredible sexual creativity. Indeed, sexuality in nature, whether reproductive or non-reproductive, is much more complex, polymorphic and changing than was conceived only a few decades ago, with the traditional view of a functional evolution of sexuality.

Many European and non-European societies have been historically plagued with the imposition of the belief that acceptable, natural, "god-given" sexuality is limited to heterosexual sex with the aim of reproduction. Other forms of sexuality have been repressed, over the past centuries, and condemned as "unnatural". Still today, a number of our contemporaries, especially certain religious extremists, are convinced that all sex occurring outside a restricted heterosexual normative frame is "against nature". However, queer ecology works to debunk these unfounded beliefs, pointing out that nature encompasses a wide variety of sexual possibilities. A queer-ecological look at cultural history also reminds us that in the Middle Ages, Europeans were not yet constrained by hetero-normative Christian norms, and that later European colonizers repressed the more flexible sexualities of Native Americans.

As suggested by Alex Johnson, the interest of "queering ecology lies in enabling humans to imagine an infinite number of possible Natures. The living world exhibits monogamy. But it also exhibits orgies, gender transformation, and cloning. What, then, is natural? All of it. None of it. Instead of using the more-than-human world as justification for or against certain behavior and characteristics, let's use the more-than-human world as a humbling indication of the capacity and diversity of all life on Earth. Let's stop congratulating ourselves. Instead, let's give a round of applause to the delicious complexity. Let us call this complexity the queer, and let us use it as a verb. Let us queer our ecology."[4]

Furthermore, I am seeing in queer ecology an antidote to holistic ideals of consensus and organic unity that might lead towards forms of green totalitarianism. On the contrary, we should seek discourses and practices that value pluralism, contestation and tensions, compromises and regulated competition, as the political dimension of cultures of sustainability based on complex uni-plurality. Beyond the traditional liberal understanding of pluralism, the feeling of queerness in NatureCulture's vitality, is awakening us to the value of a diversity of ways of being in the world.

A queer ecology, as opposed to a straightforwardly harmonious culture of nature, can contribute to our sensibility to uni-plurality: This is an aesthetic question.

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4   Source: http://www.orionmagazine.org/index.php/articles/article/6166/

Aesthetics: The sensibility to patterns that connect

The search process of sustainability compels us to heighten our sensibilities to the interdependences in contemporary (un)sustainable developments, and to the rich and vital complexities of NatureCulture. This is as much an aesthetic as an ethical imperative.

Gregory Bateson was defining aesthetics as "the sensibility to the pattern which connects". By this, he meant a capacity of recognition, shared not only by humans but also by other living beings: For him, the aesthetic is that which is "responsive to *the pattern which connects*". He defined the "aesthetic preference" of a mind, as being "able to recognize characteristics similar to their own in other systems they might encounter". A typically aesthetic question, would be "How are you related to this creature? What pattern connects you to it?"

For Bateson, a strong aesthetic sense is a heightened responsiveness to the meta-pattern uniting the living world, rather than an arrested perception, stumbling upon the 'first-order' or 'second-order' differences between elements of the living world. What this means is that relatively smaller differences should be recognized but they should not lead us away from the wider unity of the living world.

Coming back to crabs (but this time not exactly the Harrisons' crabs from Sri Lanka): Bateson once explained the "pattern which connects" to a group of art students, with the help of a dead crab on the table, asking the students to explain why that dead crab used to be a living thing. The students were supposed to find answers by just looking at it, and to do as if they had never seen a crab before. The students moved from the observation that the crab showed some symmetry between its parts (left/right), to the observation that the symmetry was not absolute (one claw bigger than the other), to the conclusion that there existed a similar relation between parts, in the case of one crab ("both claws are made of the same parts") as well as in the crab/lobster comparison and (crab-lobster)/human comparison.

Bateson was arguing that such a sensibility is biologically rooted in our selves, at a subconscious level, but got numbed in modern societies. He was encouraging the recovery of this "responsiveness to the pattern which connects", giving us back a sense of aesthetic unity – and of ecological ethics in the same process that contemporary humans are critically lacking.

Conscious purpose and goal-oriented, analytical 'rationality' do offer us shortcuts to what appears, at first sight, as solutions to our immediate problems. However, they do so at the cost of our wider mental capacities, simplifying our mental constructions of reality, and entrenching us in an increasingly narrowed-down and self-centered sensibility.

An art that is involved in the kind of aesthetics described by Bateson, can re-engage us into a wider-than-conscious communication, reconnecting ourselves to our embodied knowledge and to the many intuitive and subconscious sources of knowing that lie within ourselves. The aesthetic reflects a mental capacity which exceeds consciousness. For instance poetry is not distorted prose, but rather prose is poetry subjected to logic.

In a lecture held in 1970, Bateson asserted that art "is concerned with the relations *between* the levels of mental process [...] artistic skill is the combining of many levels of mind [...] to make a statement of their combination". The artist Shelley Sacks, whose work *Exchange Values* I shortly introduced above, wants her work to open an "expanded field of consciousness" for the participants in her projects. With such experiences, an opportunity is offered for participants to have "a creative experience in which [the] conscious mind plays only a small part", as Bateson argued.

A comparable ecological-aesthetic plea can be found in David Abram's book *The spell of the sensuous*. In it, Abram advocates for the re-awakening of a whole dimension of the human sensibility, which was and still is vibrant among some indigenous peoples, but is numbed in our societies: the sensibility to the intelligence of the "more-than-human" – and the capacity to bridge perceptions with the environment's complex and dynamic webs of life.

The aesthetics I'm discussing here, after Bateson and Abram, is also rooted in US-American philosopher John Dewey's understanding of aesthetics as experience, pointing at personal affectivity in everyday life and at a human being's overall interrelationship with his/her environment. Next to being personal, intimate even, and mundane, it is nevertheless also a global aesthetics, linking small forms to global forms, that is the third-order, global connections mentioned by Bateson. (In the example with the students looking at the crab on the table, the third-order connection is the (crab-lobster)/human comparison.) Such an aesthetic sense highlights the value of what establishes relationships across many different things in the world, that is all that is *trans*: transversal, trans-local, transitory, transsexual even – like in the *Rocky Horror Picture Show*, and transformative, against all forms of local chauvinism and monomaniac obsessions. This aesthetics of the trans- is not a New Age trance melting everything together and singing the praise of an uninterrupted natural harmony that is a simplistically holistic sensitivity which would only consider complementarity and symbiosis in nature, in life, and in society. In other words, I am not advocating for a naive form of hippie revival. On the contrary, the aesthetics of sustainability I am pointing to, is a complex sensitivity that considers as much antagonisms and competitions as complementarities and symbiosis, and transcends the contra-

dictions so as to reveal the complementary tension of antagonism and complementarity.

Understood in this way, aesthetics of sustainability highlight the beauty of the complementarity of antagonisms, which is also crucial to democracies. This sensibility was already present in the fragments of the pre-Socratic Greek philosopher Heraclitus on aesthetics: "That which is in opposition is in concert, and from things that differ comes the most beautiful harmony" (Heraclitus – quoted in Aristotle, Eth. Nic.).

For his part, Edgar Morin expressed this sensibility to complexity with a musical metaphor: "The systems sensibility will be like that of the musical ear which perceives the competitions, symbioses, interferences, overlaps of themes in one same symphonic stream, where the brutal mind will only recognize one single theme surrounded by noise" (Morin 1977: 140-141).

This approach to aesthetics also requires a careful, sensible and differentiated consideration of the uses and experiences of technologies: Technology-mediated experiences generally contribute to modern humans' numbed experience of NatureCulture. Furthermore, the globally interconnected "technosystem" in which we are living today, is giving us the impression that it is becoming a total environment of means, maybe even capable of replacing our planet's natural environments, that is the ecosystems and the global biosphere. This is a dangerous illusion, which has a strong footing in many contemporary discussions on sustainability. What's more, technological aesthetics may convey the false impression of experiencing complexity. Artificial machines and other cybernetic systems designed by humans, even the most advanced, are not as complex as biological living beings and the ecosystems in which they interact. Machines, which are merely fragments of prostheses of human societies, do not generate their selves, their own beings and existence, do not learn and evolve (or so little), and are not genuinely autonomous.

In the Harrisons' *Lagoon Cycle*, a comparison is made between the buffalo and the tractor, working in the fields in Sri Lanka. Their merits and demerits are described. The tractor is apparently more "efficient" and "modern", it is "a bold invention". But it does not insert itself as well into the ecosystem as the buffalo did over time. Nor does it provide other benefits such as milk, utilizing weed as fuel, and providing fuel and fertilizer with dung. Rather, it calls forward further technologies such as chemical fertilizers, herbicides and pesticides. Nor is it self-regenerating. The Harrisons describe the buffalo as being engaged in a dialogue with the wallow, in contrast to the tractor's "technological monologue". They write that the "buffalo / finally / is more efficient / and its dialogue with the land / more lucid". The Harrisons are being here carefully, but not indiscriminately, skeptical about the charms of technologies. They conclude: "Clearly there is something about technology that does not like that which is not itself / Yet this is not a necessary condition / this unfriendliness to the land".

Even biotechnologies, with genetic engineers, and some artists manipulating the DNA of various lifeforms, offer only very reduced forms of life's complexity.

Human genetic designers cannot seriously compete with millions of years of living evolution. Therefore, if such experiences take, aesthetically, as they often do nowadays, the disguise of complexity, we are dealing with fraud. There are of course some exceptions: One recent exception might be the "evolution machines" (as reported in *New Scientist* on June 27 2011): Some genetic engineers who have understood that intelligent design is far inferior to evolution, are instead now trying to make evolution work for them. They are accelerating some evolutionary processes of bacteria, in their "evolution machines", without trying to control, understand and design everything.

On the other hand, technologically mediated aesthetics can, in some cases, add something more, and valuable, to our experience of complexity. For example, the current reality of global climate change challenges us to experience the long time and the wide space of its unfolding.

Some artists, such as for example Andrea Polli, are conveying a sensible experience of climate change, thanks to visual and/or sound art installations which can compress climate data, from scales beyond immediate daily experience, and make them present to the visitors of these installations. Polli's sound compositions are converting climate data collected by scientists, translating variations in temperature into variations in loudness, pitch, length, timbre, etc.

Therefore, a careful and reflexive, critically aware, but also open-minded, attitude towards techno-aesthetics, is warranted. This means, neither a rejection of technology-based aesthetic experiences, ignoring their opportunities for new perceptual insights, nor a naive trust in such forms of aesthetic experience, threatening to nourish the delirium of the dawn of a "post-human" world.

Last but not least, this approach to aesthetics requires a healthy measure of sociological reflexivity. In order to avoid the risk of becoming a new tool for the self-serving distinction of elite social classes, aesthetics of sustainability should not be conceived as a fixed measure for some form of streamlined aesthetic progress and aesthetic excellence. Rather, it should remain strongly rooted and contextualized in communities across society, with a wide diversity of possible ways to realize an aesthetic experience of complexity.

And when it enacts itself in art, this is then not about art as a noun, reifying The One and Only Aesthetics of Sustainability, but about art as a verb.

Art: It's a verb

Art understood as a verb, rather than as a noun, is about interactions, experiences and processes in their vitality, rather than about fixed end products, objects and achievements in their excellence and glorious intemporality. For example, the German artist Hans Haacke stressed that he is "concerned with change [as] the ideological basis of my work [...] there's absolutely nothing static [...] the status quo is an illusion, a dangerous illusion politically."

"Art as a verb" is, however, not necessarily sustainability-literate art. Not all change-oriented movements in art can be associated to cultures of sustainability, fostering sensibilities to patterns that connect NatureCulture's dynamic complexities. For example, the belief in perpetual growth and linear progress, and the unfettered deployment of absolute individual freedom, detached from any responsibilities, are, to some extent, 'process' and 'change'-oriented values which can be found echoed in much of the art of the 20th century. However, they convey a linear, fragmented experience of reality which fuels the mainstream contemporary culture of unsustainability.

The US American artist Mierle Laderman Ukeles expressed this line of fracture between mainstream modern art and an art of sustainability, in 1969 in her manifesto of "Maintenance Art". In it she opposed the "death instinct" of modern art as opposed to a "life instinct". "The Death Instinct: separation; individuality; Avant-Garde par excellence; to follow one's own path to death—do your own thing. [...] The Life Instinct: unification; the eternal return; the perpetuation and MAINTENANCE of the species; survival systems and operations; equilibrium." To the death instinct of modern art, Ukeles further associated, in her manifesto, the notions of "Development: pure individual creation; the new; change; progress; advance; excitement; flight or fleeing". To the life instinct, she associated the processes: "preserve the new; sustain the change; protect progress; defend and prolong the advance; renew the excitement; repeat the flight". She also proposed to link the "personal", that is her personal maintenance work in everyday life, the "general", that is maintenance in social life, from sanitation work to education and health work, and the "Earth", that is the general ecosystemic support of human life. In her manifesto, Ukeles pointed out that "Maintenance Art" is proposing a conception of dynamic balance between inter-connected processes, and opposing it to a linear conception of change and movement.

Such a kind of art-as-a-verb, offers non-linear perspectives on reality. It allows a different look at the issues we are confronted with: Non-linearity is an alterna-

tive to straight 'cause and effect' views. Linear problem-solving is the traditionally advocated methodology of planning schemes, including the local Agenda21 processes: First formulate a vision, then diagnose the problems, then develop alternatives, then seek consensus, then take decisions, and finally implement and execute. The problem with this way of working is that it is rigid, disjunctive and compartmentalizing because cutting reality in separate pieces, and then incapable of re-assembling them. It is incapable of properly incorporating most of the human ways of learning and knowing reality, into decision-making. Instead, a non-linear inquiry of reality is based on "question-based learning" (as coined by the ecological artist David Haley), that is a capacity to ask, again and again, wider questions, and thereby to reframe the problems in new ways, rather than being trapped into the path-dependency of pre-established problem-definitions. Art-as-a-verb, when it is not hampered by a linear value system of progress and growth, harbors the potential for questions-based learning. If we take this potential seriously into account, we can uncover a whole new way of doing politics. For example, the German artist Joseph Beuys tried to convey such an approach to the German Green party in the 1980's, but unfortunately, they did not take it up.

Art as a verb, when practiced and experienced intensively enough by a practitioner, participant, or recipient, has the potential to also stimulate certain experience processes with a transformational value:

▬ *Imagining* potential other states of reality, other configurations of individual and social life, and *enchanting* one's worldview with this envisioning of alternative futures, thanks to the stimulation of one's imagination ; the artistic process may even give an immediate experience of the imagined alternatives, giving them a feeling of strong presence in one's life ;

▬ *Detaching* from, and *subverting*, through the imagined alternatives, one's established a-prioris, assumptions, pre-set mental schemes and fixed routines and habits – and in this process, maybe also unearthing one's repressed intuitions and knowledge, kept buried at a subconscious level ;

▬ *Experimenting* with these envisioned, subversive alternatives, in a playful framework with a higher tolerance for failure, and for unconventional behavior, than is usually possible in non-art contexts ;

▬ *Empowering* oneself as a change-agent in society, changing one's self-image and perceived capacities to exercise influence and make a change, reducing inhibitions and healing from apathy – that is reducing fear and stress induced by the social context, and *catalyzing* personal and collective motivations and commitments for change.

These experience processes are present as potentials in art-as-a-verb, but not guaranteed to occur always, for everyone. They work best, for social transformation towards cultures of sustainability, when they occur in combination with each other. For example, enchanting imagination, without subversion, detachment, concrete experiments and empowerment, will have only little transformational value.

Not all experiences of art-as-a-verb need to be deeply subversive. But they should be *challenging* experiences. Non-challenging experiences of "art" may be very enjoyable, but they comfort us in our values, habits and established knowledge. They are little more than entertainment. However, what is experienced as entertainment and comforting repetition to one person, may be challenging to another person. Therefore, the challenge-value of art-as-a-verb depends on the specific context and on the people involved.

Regarding the process of subversion, the German philosopher Herbert Marcuse (in his *Aesthetic Dimension*) argued that art's subversive imagination can only unfold itself as long as art retains a power of *estrangement* from the established social order. For this to remain the case, art-as-a-verb has to prevent simplifying discourses from reducing its beautifully complex ambivalences and equivocalness.

Furthermore, genuine detachment also requires a constant critically *reflexive* process, including a critical self-reflection about one's value system, one's working processes and the many possible consequences and side effects of one's actions. For example in Germany, Bertolt Brecht famously developed an approach to such a distancing/estrangement effect (Verfremdungseffekt) in the practice of theatre. The artist and researcher Tim Collins characterized ecological artists as "investigate-ers" and story-tellers of "alter-tales", "seek[ing] to identify conflicting and conflicted belief systems."

But in this process, conscious reflection and subconscious intuitions are not to be separated and opposed to each other, condemning intuitions as unreflective. On the contrary, they should complement one another.

The playful experimentation with alternatives is comparable with the learning process of an acrobat, who learns to walk on a thin wire, with a safety net. However, the acrobat's safety net is not meant to be kept forever in place. It is removed, once the acrobat has found his or her dynamic balance. This safety net is therefore not the same thing as an eternal sandbox for a Peter Pan art-world, with its never-aging, childish, ironic and irresponsible professional artists. The experimentations elaborated by artists working toward social transformations, are not merely escapist dreams trapped in The Never Never Land. On the contrary, their work is shared in communities of practice beyond the boundaries of specific 'art worlds', and it aims to convey art's subversive imagination, into empowering capabilities across all areas of social life.

Empowerment, in communities of practice, also requires that the creative processes be shared, as *commons* rather than as gifts coming exclusively from geniuses such as talented artists or inventors. The issue of ownership matters. The artist's role should therefore be, as argued by Tim Collins, to "intervene as advocate for shared spaces and ecosystems", "transcend[ing] primary authorship", fostering creativity, ownership and empowerment in the community rather than appearing as sole or final author of creative impetus. For example, Helen and Newton Harrison take care in their work to be "non-possessive" and to "share authorship" so that a conversation or project, they initiated, can also "develop

a life of its own". Therefore, they are encouraging "others who take ownership". Tim Collins is also aware that the artist, however, cannot claim to be seen as a mere regular community insider, and thus should not be naively expecting this to happen by itself: "We cannot change the fact that we arrive as both outsiders and experts. It is up to us to take the various theoretical issues of agency, representation and dialogic equity to heart and mind and to work with care and consciousness in any resulting dialogue. We must act with full awareness of the fundamental need not to harm. We must act with the clear intent of dialogue, and we must act with a clear understanding of the relationships of power and our role in that context."[5]

A transformational practice of art-as-a-verb is neither conceiving art as useless, nor as functional. This means that the artistic practice does not try to remain useless – turning uses of art into a taboo, but also does not aim to fulfill a priori functions, that is: functions determined at the outset of the process. Some functions may come in the process itself, and that's all right. This kind of process can be linked to the concept of "exaptation" from evolutionary psychology: A property that appeared for some reason develops new functions for itself and fulfills unforeseen goals. This is a process of extension of functionality, emerging from collective practices, without a pre-established design. Collective intuitions have the potential to shape exaptations which are far more innovative than any so-called "intelligent design".

Besides the four categories I described above (imagining/enchanting, detaching/subverting, experimenting, empowering/catalyzing), comparable experience processes and learning processes can of course also be described in different ways, with other categories. For example, the London-based collective PLATFORM, composed of artists, activists and researchers, identifies and describes the following seven dimensions in its work:

- *Dreaming*, that is having "visions" beyond what is usually considered possible.
- *Researching*, inter-disciplinarily and with communities, to "[d]evelop in-depth understanding".
- *Selecting*, that is being "pragmatic [in c]hoos[ing] whatever strategy and medium is most appropriate to the aim of the work".
- *Forming*, that is setting in motion "a process like sculpture – molding, changing, experimenting".
- *Feeling*, that is to "[e]ngage with audiences [...] in the most intense and moving way possible [... to m]ove beyond the rational alone [and e]ngage the soul as well as the mind".
- *Connecting* the local and the global, and "enabl[ing] individuals to understand their own power and ethical responsibilities".

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5   Tim Collins: Reconsidering the Monongahela Conference, Pittsburgh, 2004. Available online at http://moncon.greenmuseum.org/recap.htm

▬▬*Looking Long,* that is: "a commitment to place and people over time", with certain works that extended over as much as 15 years.

I am not trying here to herald art-as-a-verb at the exclusion of other ways of exploring and knowing reality, such as for example science-as-a-verb, carefully elaborating theoretical constructions and empirically confronting sets of hypotheses. Rather, art-as-a-verb is part of a complex knowing of reality, which also requires the insights of various scientific methods. And art-as-a-verb is, actually, already actively present, within innovative scientific practice, as well as in many professional fields other than "the arts". Some people, like the Dutch-Mexican social scientist Hans Dieleman, even prefer to move towards "artscience" rather than to continue working within art and/or science. Art, *as a verb,* should not be understood as limited to a specific sector of society labeled as "the arts". But professionals who do work in the artistic sector can very well be catalysts for others to become reflective practitioners, and for communities to tap into the potentials of their collective intuitions.

Serendipity: of learning cultures and silent transformations

The English language has a beautiful word, standing for the ability to discern opportunities for learning in accidents and surprises of life, and for the sagacity of making discoveries of things which one is not looking for: S*erendipity*. This word has become popular in the second half of the 20th century, and even extremely popular in the English-speaking world in the last two decades. But it is, unfortunately, improbable that its meaning and depth has gained an equally widespread understanding. The wisdom coming from serendipity is needed, in order for us to relate to the *emergence* of the new in NatureCulture's complex dynamism, and to the chances of extensions of functionality in art's *exaptation* – as I described in the pages above.

In their experiments with the crabs from Sri Lanka and with the ecological disaster of the Salton Sea in California, over the 12 years process of the *Lagoon Cycle*, the Harrisons illustrated one case of a couple of artists combining applied scientific research and some willful planning/dreaming, with artful, serendipitous learning and, conclusively, a humble withdrawal from the illusions of technological control.

Serendipity allows us to learn from the unexpected, in our failures and in our intuitions, and to learn by trial and error – also called *iterative* learning. The occurrence of an accident is in itself not enough for someone to be serendipitous, but a specific openness and sensibility is necessary, a specific "sagacity". The word "sagacity" refers to a wisdom that is grounded in sense perceptions, and that allows keen discernment and sound judgment. The required openness also means that one should be flexible, curious and alert enough to change one's goals and interests, along the way.

Serendipity also involves learning across different, apparently unrelated contexts, in a transversal, often metaphorical, way. This is also called *lateral thinking*, learning from unique incidents by a process of *abduction*. In all these aspects, the practice of art-as-a-verb can be helpful.

One everyday practice, which artists share with all other human beings that can also be especially helpful in this, but which the 'developed' consumer societies are only seldom performing, is walking. In consumer culture, walking is limited to shopping spaces, amusement parks and footpaths for the holidays.

Serendipity is a walker's wisdom. The fairy tale entitled *The Three Princes of Serendip*, published in Italy in 1557 (from Persian or/and Indian sources), was the inspiration for the creation of the English word serendipity by Horace Walpole in the 18th century. In this fairytale the three princes from the island of Serendip (which is no other than present-day Sri Lanka) gain wisdom while walking in a foreign kingdom. They are learning, while walking and attentively observing, smelling, touching their surroundings to interpret the most subtle and nearly unnoticeable signs on the road sides. They are readily discovering what they were not looking for.

Walking is not only an everyday practice characterizing the human being, but also a very rich form of *action research*. It allows embodied learning. Walking-based practices put learned things in contexts, locally and ecologically, embedded in a real geography and not only conveniently virtual. Thanks to the slower rhythm, the walker heightens his or her attention. Walking across places involves moving, exchanging, comparing. Walking is transversal because the transversal is that which cuts across, walks across, different levels of reality, not only bridging them, but also traveling beyond them.

Walking can even become a genuinely transversal method for knowing, sensing and changing the realities of local communities. Transformation may then also occur, as the reshaping of the form of reality. Walking is sometimes a social and political practice, reshaping the realities of shared spaces and the fiction of public space, accompanying political expressions and the articulation of democracies, as with Gandhi's famous "salt march to Dandi". Walking allows both exchanges with multiple others and personal introspection for oneself. And, as an ordinary activity, low-tech rather than high-tech, it is accessible to all, and open to mixing all sorts of non elite-wisdoms from all human groups.

Furthermore, cultures of sustainability as learning, evolutionarily fit cultures, also require a sensibility to what the French philosopher and sinologist Francois Jullien called "silent transformations". These are long-time, wide-scale transformations in nature and society, that are deep and progressively, imperceptibly emerging, such as one's own aging process, love turning into mutual indifference, a revolution turning into reaction, the growth of a tree, or climate change. Because such changes are so transitional, involving a continuous process of "modification-continuation" (*bian-tong* in the *Yijing*, the ancient Chinese classic), they are not well-thought of within Western thinking, rooted in Greek philosophy's focus on identifying determined forms. Silent transformations are indeterminable, and Western philosophy can only see an end-result, a fixed form. For example, Jullien explains, Plato could not conceptualize the phenomenon of melting snow, stuck as he was in trying to define beings with delimited properties. By contrast, Chinese thought, for example in the Taoist tradition, is better able to think in fluid ways, and can teach us to better understand and deal with the silent transformations that are so important to profound changes in social life. Rather than trying to change reality heroically with big and salient actions and with abrupt events, we should rather explore the subtle propensity of situations, and induce changes

by finding moments of inflections of *propensities*: In other words, moments of possible shifts of inclinations into other directions. When changes are visible, it is already too late to act on silent transformations which have been at play under the surface of perception. The serendipitous learner, the sensible gardener, will be sensible to the propensities of situations, rather than confronting facts with actions. How to act then? Jullien suggests practicing a patiently political art of inducing subtle changes, without excessively willful control and interventions which by their willfulness and strong design-desire, would ignore propensities. It is an "art of maturation" rather than modelization, based on experienced conditions rather than on idealized concepts.

For all these reasons, cultures of sustainability can be fostered thanks to the transversal practice of art-as-a-verb which is unfolding itself as a personal and social *space of indeterminacy*.

To give one last example, in very concrete terms, such spaces of indeterminacy could be physical spaces in cities which have no assigned functions from city planners but many, changing – that is transient, impermanent, informal uses. Such un-planned hybrid voids, which do not fit with the limited and linear formal rationality of urban planning , constitute some potential spaces for transformative practices. There is also a need to "de-plannify" urban planning and to allow more un- designated spaces in the city, where communities and creative practitioners can experiment more sustainable ways of life – instead of exceedingly planned creative/cultural districts. In these spaces, communities also exercise their "Right to the City".

For a transformative art to flourish, which works toward global (environ) mental change, the cultivation of serendipitous learning in spaces of indeterminacy, should be further encouraged. Alliances with social movements experimenting with cultural transitions, such as the commons paradigm, transition towns and right to the city movements, should be encouraged, and insights shared across these different platforms and networks. Art-as-a-verb in general, and ecological art in particular, have the potential to foster a sensibility to Nature-Culture's dynamic complexity. This may hopefully contribute to cultural transformations as the basis for social-ecological reforms. Reconfiguring the hardware of civilization also necessitates wide-ranging transformations in the software of minds.

Toward Global (Environ)Mental Change

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The global crisis of unsustainability is not only a crisis of the hardware of civilization. It is also a crisis of the software of minds. The search for a more sustainable development has been focusing too much on hardware updates, such as new technologies, economic incentives, policies and regulations, and too

little on software revisions – that is cultural transformations affecting our ways of knowing, learning, valuing and acting together.

Sacha Kagan's essay wants to show us the potential of art in the transformation process toward cultures of sustainability.