TEXT 3 FLURINA GRADIN P.441-448

IN TRANSFORMATION: DESIGN FOR THE ECOLOGICAL SHIFT

Since the year 2008, the city of Zurich has been on track to becoming a "2000-watt society," and is seen as a pioneer in this regard. This vision of a 2000-watt society means that primary energy consumption will be reduced to 2000 watts per person, with CO_2 emissions totalling a maximum of one tonne per person per year. The focus here is on the areas of consumption, housing, buildings, energy supply and mobility.

Yet what concrete living environments emerge behind this concept and its abstract statistics? And what might further necessary adjustments to our everyday lives look like, if we are to achieve this goal that we have set ourselves? For most of us, it is difficult to find answers to such questions, and they only serve to raise yet more questions in turn.

One specific area in Zurich that can offer us interim answers (as it now meets the 2000-watt criteria) is the "Zurich Freilager," the former customs-free storage area in the city. This area allows us to experience what it might feel like to live in a 2000-watt society, and seeks to present an example that might show private persons and private households how to convert the vision into a reality. Since this housing estate came into use, it has offered regular guided tours for interested parties who want to experience what life in a 2000-watt society might feel like, and who want to be inspired to make their own contribution.

Because they can be experienced at first hand, areas such as the Zurich Freilager, the Hunziker-Areal in Zürich-Oerlikon and the Kalkbreite housing estate facilitate an engagement with how we might live in future (or might want to live), and how society might want to organise itself. Yet these examples also demonstrate the complexity of such individual lifeworlds and "partial ecosystems," and they illustrate just how daunting it can be for us human beings to realise this complexity in all its minute detail.

The following questions arise, for example: How can cyclists best cope with the heavy traffic at the road axes just outside the sites in question that connect them to other parts of the city, yet constitute not just junction points, but barriers between them? The local Spar supermarket branch sells some organic food, but otherwise has only its stock products on offer; so does it really provide the hoped-for "added value" of offering seasonal, regional produce at the proverbial "corner shop"? And what is the impact on the ecosystem of the hornbeam trees planted close together on the open spaces of the site, compared to that of the single trees growing outside the area with their spreading branches? Do people furnish their apartments more sustainably on the housing estate, do they produce less waste, do they engage more with their neighbours, and do they shower for shorter periods of time (and thus more sustainably) than in other parts of the city? The most crucial question is this: To what extent does the design of such a housing estate truly encourage a more sustainable lifestyle and a better environmental footprint on the part of its individual inhabitants?

In our Anthropocene Epoch, the environment, our habitats and our ecosystems are not merely a given, but are also made by us humans. This applies especially to urban spaces. And Nature was never an unalterable entity, even before the advent of the Anthropocene. The different ecosystems are in fact fluid, constantly in motion and in a state of exchange with each

Already in 2008, a majority of 76.4% of the population of the city of Zurich voted in favour of a binding commitment to realising this energy policy vision. At the time, consumption per capita stood at roughly 6000 watts, compared to some 4000W in 2019.

"The 2000-watt society is a vision of our energy policy. It brings together the national efficiency guidelines for the Energy Strategy 2050 and the international climate goals of Paris 2015. Innovative energy systems, an intelligent approach to resources, and a consistent application of renewable energies form the basis of this concept" (See http://2000watt.ch, accessed on September 19, 2019).

A separate "ecosystem" with a village-like character has been built on the former grounds of the cus-

other—such as the ecosystem of a specific housing estate within the ecosystem of a city. Both are urban ecosystems that are largely designed and developed by humans.

What's more, people's perceptions of their environment are constantly developing. Over time, our view of our planet has expanded from that of the Flat Earth to a globe, to part of the Solar System, and so on; today, this process is continued by our perspectives in virtual spheres. We may assume that our perception will continually change in future too, and that today's parameters may well be regarded as obsolete one day.

If we consider design against this background, then it seems natural to suppose that this discipline can play a pivotal role in our ever-changing perception of the environment and how we use it. For example, in his book *Weltentwerfen*, Friedrich von Borries writes of the effective force of design, in that "the world is both an object and the result of design." [xviii]

We shall now consider the role that the design discipline could play in designing future environments and ecosystems, taking the above premises into consideration. This issue is all the more urgent given the increasingly obvious impact of climate change and our concerns about the future of the world in which we live. Our society is being confronted with challenges that are social, economic and especially ecological in nature. The impact of human beings in the Anthropocene is resulting in issues such as global warming, the loss of biodiversity, scarcity of resources and suchlike. A global hyper-collapse of assorted global ecosystems seems unavoidable, and it is probably just a matter of time before we experience a series of causal tipping points. [xix]

We are confronted with existential questions that cannot be solved by our usual patterns of behaviour and by hitherto common approaches. It seems that a comprehensive societal, technological and cultural shift on the part of humans is going to be essential if we are to ensure the future of Planet Earth. We human beings can expect to engage with potential ecosystems of the future in a multifarious, transdisciplinary manner. The current, highly intrusive role of human beings means that we will probably also be confronted with the necessity of designing those ecosystems ourselves to an increasingly active degree.

toms-free warehouse in Zurich for some 2,500 people in compact housing, built to the highest construction standards and with a low energy footprint (certified "Minergie Eco/P-Eco"), with short supply routes and a layout attractive to all lifestyles and ages among its well-mixed population. It has an explicit focus on bicycles instead of cars, and generous open spaces for adults and children. See Mehr als Wohnen, accessed September 19, 2019, http://www.mehr-alswohnen.ch.

[xvii] See Genossenschaft Kalkbreite, accessed September 19, 2019, http://www.kalkbreite.net.

[xviii] Friedrich von Borries, *Weltentwerfen: Eine politische Designtheorie* (Berlin: Suhrkamp Verlag, 2016), 119 (translated from German).

[xix] A tipping point is "the time at which a change or an effect cannot be stopped." Cambridge Dictionary, s.v. "tipping point," accessed September 7, 2019, http://dictionary.cambridge.org/dictionary/english/tipping-point. It should be regarded as a matter of course that contemporary design curricula have long since emancipated the discipline from simply "designing things," going beyond designing mere function and form. The dilemma has often been discussed–namely, the ecological design of goods and services that themselves are part and parcel of the capitalist economic system; but this is not the real focus of the current chapter.

[xx] Bernd Scherer and Jürgen Renn (eds.), *Das Anthropozän: Zum Stand der Dinge* (Berlin: Matthes & Seitz, 2015), 14.

[xxi] Scherer and Renn, *Das Anthropozän*, 25.

[xxii] Duden, s.v. "Ökologie," accessed August 28, 2019, http://www.duden.de/rechtschreibung/Oekologie.

[xxiii] See Ernst Haeckel, *Generelle Morphologie der Organismen*, vol. 2 "Allgemeine Entwicklungsgeschichte" (Berlin: G. Reimer Verlag, 1866), chap. 19.

At the outset, it is important to state that we shall not be offering any solutions to how design might intervene to help "save the world." Instead, we aim to take the concepts "Anthropocene," "ecology," "Nature" and "culture" and use them to construct a series of questions that can be relevant to the design discipline in its approach to current and future ecosystems. This may in turn enable us to formulate principles for designing the world that are especially promising in our current context. Design, and the "concept of design," are not discussed here as providing solutions, but as "encouragers" and "door-openers."

The presence of humans has an intense impact on the Planet Earth. The Anthropocene Epoch, which was declared several decades ago, describes a new geochronological epoch succeeding the Holocene, the epoch determined by the warmth of the sun. The Anthropocene can be understood as a process in which flows of material and energy, steered by humans, interact with each other in a manner that is determined by both knowledge and power. The key player in the Anthropocene is the "anthropos," the human being. Or, as Peter Sloterdijk has put it: "Talking about the Anthropocene means being aware of the responsibility that we human beings have towards our planet."

This responsibility is something direct and immediate, because like all other living creatures, humans too are part of the spatially limited ecosystem that is the Earth. In this regard, the etymology of the word "ecology" is of significance. It combines the concepts of *oikos* (Ancient Greek for "house") and *logos* (reason). Ernst Haeckel defined this scientific concept in 1866 as "The whole science of an organism's relationships to its outside environment, both organic and inorganic in nature." The "ecosystem Earth" comprises an infinite multitude of different, smaller ecosystems, though it is obviously not clear whether we humans personally perceive ourselves as being outside our ecosystem, or part of it. This is an issue that is the object of intense discussion at present. Bruno Latour even goes so far as to claim that "ecology must be made the basis of all politics and economics, founded on the argument that everything is connected, that Man and Nature are one and the same, and that we can only […] avoid a moral, economic and ecological disaster […] if we manage to establish a single system comprising Nature and society."

The fact that humans do not always see themselves as part of an ecosystem or of individual, partial ecosystems, may also derive from the fact that humans have an ambivalent, often overly unreflective relationship to the concept of "nature." "Nature" is generally understood as something "untouched by humans," as a guarantor for the pristine and primordial. We rarely ask whether anything like this supposed "nature" in fact exists, and if so, to what degree, nor whether we can really denote anything as "natural" in this sense. In our Anthropocene Epoch, however, it is increasingly difficult to keep apart concepts such as "nature," "culture" and the "artificial."

So-called "natural ecosystems" do not exist apart from "artificial" living environments (i.e. those designed by humans). The connective link between them, and the guarantor of their mutual, high degree of interdependence, is the boundary of the abovementioned "ecosystem Earth" to which both those partial ecosystems belong. There remains the provocative question as to whether nature, inasmuch

Bruno Latour, "Modernisierung oder Ökologisierung," *ARCH+* 196/197 (2010): 12.

as it has ever existed, has not been successively replaced by "concepts of nature." This in turn raises questions about the influence that this has exerted on how humans engage with their "natural environment." For humans, "nature" is not culturally neutral terrain, but just as much a product or a construct as any other cultural dynamic, or even the concept of "culture" in and of itself.

The latter is understood to be "the totality of intellectual, artistic, formative achievements of a society that expresses the higher development of human beings."[1] If we take our ambivalent concept of nature as our starting point, then "nature" and "culture," situated on a sliding scale of definitions, are perhaps less clearly separable than one might at first sight suspect. We can thus define an ecological crisis not just as a physical and a technological crisis, but also, above all, as a cultural crisis—for example, by how society deals with ecological fragility and how it contextualises the different aspects of it. We can offer a simple example: just because we regularly check the daily weather forecast does not mean that we derive any real knowledge about the climate as a result. Creating such a connection is more a matter of scalability and the degree to which one's own powers of perception may be limited or not. Local, short-term activities remain in our mind. Yet to what extent are we human beings even able to understand global circumstances? Besides factors such as knowledge and our degree of interest, matters such as our cultural heritage, cultural understanding and cultural trends are of similarly immense relevance to how we behave within our different partial ecosystems on the Earth.

Within the context of a discussion about the relationship of nature and culture, design can play a role that is both meaningful and constructive in the truest sense of the word, beyond the scope of mere "product design," precisely because it inherently engages with the everyday life of human beings and with societal conventions.

Given the ecological upheaval into which we have manoeuvred ourselves, it can be instructive to consider the role of design in helping to shape or "design" our culture. This link deserves greater attention, and could inspire decisive developmental steps in society. For example, how might cultural emancipation clarify our (in-)ability to deal with ecological fragilities, and how might it deal with finite resources, thinking and planning in broader contexts and/or for the longer term? To rephrase the question with specific reference to the vision of a 2000-watt society and the Freilager Areal mentioned here at the outset: how might the field of design help to shape everyday life in the partial ecosystem of the Zurich Freilager? How can it promote sustainable ways of life beyond the basic infrastructure and the overall concept, down to the individual everyday culture of those who inhabit the estate?

Jürgen Renn of the Max Planck Institute has written that when ecosystems are made by humans, dualisms such as nature/culture and subject/object no longer function in the usual way. We need to find a new way of approaching the world. What can we do? How can we know what to do? And how are these two aspects connected to one another?[2] Design can insert itself at just such interfaces. The following issues are relevant in this regard:

- The sustainability of knowledge: What kind of action does design produce, and how is the

[1] Duden, s.v. "Kultur," accessed August 28, 2019, http://www.duden.de/rechtschreibung/Kultur.

[2] Scherer and Renn, *Das Anthropozän*, 184ff.

necessary knowledge incorporated in it?

- The self-awareness of the discipline: What can design do in order to heighten our understanding of the world instead of just producing it?
- Awareness: How does design interact with the status quo of planet Earth?
- Scaling: At what level of its sphere of influence does design become engaged, and what ecosystems are incorporated into the design process?
- Relation to reality: How does design engage with different priorities along an axis stretching from what is rooted in everyday life to the products of speculative desire and artistic imagination?

Thanks to their specific abilities in matters of communication, authorship, art and interpretation, designers can function as visionary trailblazers and have a determining impact on future living environments for human beings; they can transform them into reality and thereby contribute to discussing and implementing more sustainable ecological developments. However, the role of designers here is by no means that of some moral, societal authority that determines which visions are "good" and which are "bad." Discussing and assessing such approaches and applications remains the task of society as a whole. Yet designers can take a stance on these things and think ahead and provide prototypes. For example, they can make ecological knowledge, sustainable ways of life and technologies visible and give them concrete form; they can also pose critical questions and thereby influence the everyday culture of human beings and how they perceive their world.

We can indeed observe an increasing sense of engagement with ecological issues and environmental problems on the part of the arts and design. There is a sense that processes in our environment should be transformed into direct, aesthetic, emotional and cultural experiences that we can reflect upon, and by means of which we may attain a new way of perceiving nature and a new awareness of the environment itself. In artistic research, environmental topics and projects for alternative, artistically determined ecosystems are increasingly becoming a focus of attention. [1] This interface between the design discipline and ecological thinking already has a long history. [2] Yet there remains a great need for actual design solutions and applications that go beyond product-oriented design, and that foster an ecological way of living and thinking encompassing all aspects of everyday life. This field of action has by no means already been defined in full, but can be described as, in many respects, a terra incognita.

In a rapidly changing environment, it can be advantageous for designers to analyse different, existing ecosystems and to use this to develop visions of possible, future ecosystems—whether in order to define their own scope for manoeuvre, to incorporate circular processes in their own work, or to focus their perspective on conventional scenarios in order to ask critical questions of them. In what follows below, we shall present three rough spheres of action for the design discipline that may serve as initial points of orientation for a further engagement with this topic, and which might help us to establish possible future roles for designers:

[1] Flurina Gradin, Marcus Maeder, and Hannes Rickli, *ZHdK Ecolab* (Zurich: Zurich University of the Arts, 2018), 2.

[2] See Victor Papanek, *Design for the Real World: Human Ecology and Social Change* (New York: Pantheon Books, 1971); Karin-Simone Fuhs, ed., *Die Geschichte des nachhaltigen Designs* (Bamberg: Mediengruppe Oberfranken, 2013).

SPHERE I: DESIGN FOR ECOLOGIES

In this sphere, designers adopt a value-neutral stance. They take the existing environment of the present, past or foreseeable future as the starting point for their work, and engage with desires and living environments that emerge out of immediate reality. The focus here is on innovative approaches to problem-solving, in order to better cope with the "status quo" or with unavoidable circumstances such as current ecological changes. As Paola Antonelli aptly wrote for the exhibition "Broken Nature," design in this case can be defined as a "tool for analysis and repair."

SPHERE II: DESIGN FOR POLITICAL ECOLOGIES

This sphere has a similar approach to Sphere I, although here designers see their profession as a form of activism and adopt a more or less political stance. This is achieved through questioning and reflecting on conventional patterns of behaviour. Design that orients itself towards this sphere may, for example, engage with the identity politics of commodities or the desires and behaviour of people from an objective standpoint. Questions are asked here about the moral duties of the discipline, and thus also about how a discipline-specific art of action can be developed in order to provide an aesthetically charged resistance against the incongruities of reality.

SPHERE III: DESIGN FOR FUTURE ECOLOGIES

Sphere III is no longer oriented towards reality, but towards fiction, and is engaged with designing possible new worlds. Here, designers do not have real facts as their starting point, but speculation and specific interests. They negotiate between the cultural sciences and the humanities, demonstrating an interest in collective experiments with (and within) possible ecosystems that can constitute the world, and they will orientate their design clearly in line with possible futures. They thus see their work as designing the future—such as by developing new needs, status symbols, life concepts and narratives. Designers in this sphere will adopt a visionary stance; they will take joy in discovery and will have a strong urge to develop alternative worlds, utopias and dystopias of new ecological spaces of possibility, and dream worlds.

Taking our initial premises as our starting point, design has the potential to become one of the leading disciplines of the future. The results of design projects will belong either to the everyday world or to the imagination, depending on which of the three abovementioned spheres designers take as their guide. In general, discipline-specific abilities can help to create a courageous, topical vocabulary that will enable designers to describe and discuss life in ecosystems of the present and future.

In the Anthropocene, the absolute presence of humans in the ecosystem of Earth and its sub-ecosystems, along with their concomitant interactions with basic ecological principles, offers designers a kind of gameplay that requires them to engage with scientific facts, and requires thorough ratio analyses, prototypical implementations and interpretations. Only in this manner will they be able to achieve a reflective cultural debate, and be able to situate and shape these interactions with the world in general, and with our concept of nature in particular.

If we apply these ideas to the concrete example of the 2000-

Paola Antonelli and Ala Tannir, eds., *Broken Nature* (Verona: Elcograf, 2019), 18. The concept of "vocabulary" is to be understood here in the broader sense of the word.

Broken Nature: Design Takes on Human Survival, The XXII Triennale di Milano, March 1–September 1, 2019, accessed January 15, 2020, http://www.brokennature.org.

watt housing estate at the Zurich Freilager, this means that design methods must be employed to make visible both the current state of affairs and the further development of a vision of a sustainable society. In other words, there would have to be an analysis of the current status quo (conditions on the spot, the needs of the inhabitants and of their everyday lives on the estate), then this status quo would have to be compared to the goals of the 2000-watt society, and relevant problems and issues identified with a view to determining in detail a more sustainable way of life; finally, building on this, a future vision would have to be developed or questioned by means of concrete, design project prototypes.

As a discipline, design should perceive ecological challenges and associated scenarios in a way that is particularly relevant; this is always inherent to this mode of working with prototypes. For example, one might choose for one's own work a scenario in which technology is the saviour, or an apocalyptic scenario, a "yes-we-can" scenario, or a scenario in which salvation occurs by chance; yet how would any of these scenarios play out in the details of everyday life? If designers are aware of which scenario they are following in their work, it can help them to focus and communicate their design project.

To close, I shall paraphrase Bruno Latour once more. He has observed that design as a discipline can shape the whole fabric of life, and bears within it the intrinsic strength to be an ersatz for revolution and modernisation. The potential of design is by no means purely descriptive, but can be interventionist to a high degree. It is up to designers themselves to decide where they wish to situate themselves, and which ecological alternatives they wish to consider in order to be able to act using the means of their profession—whether they wish to imagine alternatives that open up new spaces of possibility, and less in terms of reductionist either-or decisions: because designed visions can leave their mark on how we perceive the world, and are indispensable options for the ecosystems of the future.

Bruno Latour, "Ein vorsichtiger Prometheus: Design im Zeitalter des Klimawandels," *ARCH+* 196/197 (2010): 23.

OUR HABITATS AND OUR ECOSYSTEMS ARE NOT MERELY A GIVEN, BUT ARE ALSO MÁDE BY US

HABITAT P.442

ECOSYSTEM P.251 P.252 P.256 P.442 P.443 P.444 P.445 P.446 P.447

MADE BY P.76 P.240 P.265 P.355 P.442 P.445