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Technologies between Soil and Sun

One of the major changes brought about by the climate crisis of recent years is a new focus on the earth: people are beginning to see themselves as part of the world. The world and all its inhabitants are matter; living matter that is determined by processes of becoming and passing away; processes that are cosmic because they are connected to the universe, determined by laws of physics and chemistry that can not simply be thrown overboard with cloudy talk of the immateriality of networks. Technologies themselves are seen as coming from nature or as nature: "Nature provides the raw material of technology," says philosopher Jean-Luc Nancy[1]. And media theorist Jussi Parikka demands that we should conceive of media not as extensions of man, but, in a geological sense, as extensions of the Earth[2]. Thus, computers are assemblages of rocks, sediments and slags. The modern hierarchy of the dominance of technology over nature is called into question. Many, disillusioned or disenchanted by the false promises of globalization, are beginning to recalibrate scales to give more value to the things around them. Ancient rituals are reactivated and contemporary ones invented to thank plants, insects and birds for their work. Many more are ready to tear themselves away from the never-ending flow of images on their smartphones, to look around, to notice the dandelion by the roadside, to think about how the plant managed to pierce concrete and thrive anyway. Perhaps this perspective realizes that other less adaptable species have disappeared from the landscape, the monoculture; even though they fought for survival, cooperated with fellow sufferers and tried to shift things according to their needs… In parallel to this new eco-sensitivity, the centuries-old narrative of exploitation and elimination continues at an accelerated pace, thanks to our 24/7 connection to media conglomerates, the ubiquitous use of energy-guzzling technologies, potentiated by the normalization of militarization, insatiable consumerism and the dwindling of earth-based feedback loops.

This text goes back to a discussion between the curator of the exhibition, Sakrowski, and me. I told him that I try to understand ecology not only as the subject of my research, but also try to live ecologically in my everyday life, for example by traveling by train and hardly ever flying, that I spend my vacations walking

1 Jean-Luc Nancy, "Of Struction," Parrhesia, no. 17, 2013, pp. 1-10, here p. 54.

2 Jussi Parikka, A Geology of Media, Minneapolis and London: University of Minnesota Press 2015

and considering where everything I consume comes from, where it is going and which actors are involved in these processes and in which forms. In my day-to-day life, I regularly immerse myself in a variety of before and after stories of all objects I encounter. Anything can trigger my fantasy journeys: the electricity from the plug, or the basil plant in the supermarket. In considering these ecologies, I don't mean greenwashing, but rather choosing to notice how various actors are interconnected or disparate entities situated in a web of interdependencies. Ecology, that is gr. oikos, meaning: the house, household, female socialized/connotated care and repair work, network economy, niche politics; in short: "Alt Net".

Ideally, ecology is less a topic and rather a method of perception--encompassing a sensitivity to the myriad multi-species relations (an eco-sensibility)--and a life practice: the attempt to do things just, insofar as "my" ability and authority permits, and to affect others through "my" behavior. I have called such practices "Technologies of Care".[3] This involves engaging with and paying attention to the non-human environment, seeing what happens there and deriving joy and fulfillment from it.

Sakrowski found my personal actions well-intentioned but not effective --he has personal adoptions of this principle: but without a political system change or collective action, individual life practices would not change anything.

Now, we have come together again with the current project and the "Alt Net" exhibition--and the question of the possibilities for agency and action is still in the air. But like Sakrowski and Noemi Garay, I am also interested in the question of how people, technologies and more-than-human beings come together and form alliances in art, what they negotiate and open up and how are these aspects valued in a hybrid considered perspective. I would like to narrow the scope of this question with two selected positions from the exhibition which are especially elucidating. These works are not more important than the others, rather, they have accompanied my thinking for some time. I can identify aesthetic strategies, both in their differences and similarities, that exemplify the new shift towards recognizing our connection to the earth.

Becoming-attentive--"The Spores"

Away from the computer and towards the soil, towards the fungi which operate under the culturally dominant radar. This is how one could summarize the approach of "The Spores" (2024) by artist Matthias Fritsch. He has been involved with permaculture for eight years and is trying to make its approaches--"Earth Care, People Care and Fair Share"--fruitful for art, which he calls "Perma Art".[4]

An essential part of permaculture is immersing oneself in the respective ecologies, observing and sensing them, learning from them, interacting with them and reacting to their particularities. In other words, in permaculture, the ecological is always an aesthetic experience paired with eco-technical practices. For the installation, Matthias Fritsch has transformed the gallery space into a warm and humid biotope for mushrooms. A site specific architecture accom-

3 Yvonne Volkart, Technologies of Care. From Sensing Technologies to an Aesthetics of Attention in a More-than-Human World. Zürich: diaphanes 2023, open access: https://www.diaphanes.net/titel/technologies-of-care-7046

4 Description on https://www.technoviking.tv/subrealic.net/

modates various substrates inoculated with fungal spores. Visitors walk along a narrow path through the tightly arranged mushroom scaffolding, getting physically close to the mycelia and their growing fruiting bodies, smelling them, touching them, perhaps even pulling them down if they are not careful. Exhibition viewers' movement, coupled with the warm and humid climate, helps to distribute the spores around the gallery and carry them out into the world, into the universe. The visitors thus become carriers of substances that form the "World Wide Mushroom Web", as Fritsch says in reference to the Wood Wide and World Wide Web. "But mushrooms are not only in the forest, many mushrooms colonize an empire that has continental dimensions. Some species have spread across the entire northern hemisphere. Spores reach the stratosphere and can fly thousands of kilometers. When visitors leave the exhibition, they also carry a large number of new spores with them and who knows where they will end up and form a new colony."[5] Through the installation set-up, people can experience themselves physically and speculatively as part of a network that has cosmic dimensions and encompasses organic and non-organic entities. The method of creating intimate material encounters, of being infected and affected by others, is central to both permaculture and the practice of Matthias Fritsch. He also uses this touching methodology in his short films about mushrooms; thanks to time-lapse and macro lenses, it is possible to join temporal processes and micro-formations that take place beyond the dominant spectrum of human perception. The installation teaches us to be attentive and reduce motoric skill to a minimum so that we do not, for example, tear down the growing fruiting bodies, and instead, to focus our senses on the almost invisible. Those who come again and again, experience how changes take place in the biotope over time; thus becoming witnesses, a part of ecological events unfolding in the installation. Movement. Something grows--through, despite, with and beside us. Mushroomhumanmachine. Here, growth is not predetermined--as is the case in many greenhouses already controlled by AI--by a growth oriented logic. Instead, growing is becoming--growing into the open.

Permacultural thinking is about cultural change, about rejecting our dominant culture of wasting in favor of an eco-culture of transformation--a true system change and a paradigm shift away from wastefulness as a means to profit making. Infra/structures and means of production are being rethought; however, the transformation takes place less on a global political level and more in niches that are already being lived. As we saw with Matthias Fritsch, who already created a similar mushroom and spore installation in Greece, this means:

"The artist's journey from abroad was by bus and not by plane as is usual for such distances. The materials used were mostly organic. The substrate in the mushroom bags was based on straw, which is a by-product of agriculture. It is returned to the earth after the mushroom cultures have reached the end of their lives. The architecture was assembled exclusively from wood from a previous mushroom installation and leftover lumber from the preparatory work."[6]

5 Matthias Fritsch in an e-mail to Yvonne Volkart, August 18, 2024
6 https://www.technoviking.tv/subrealic.net/

Permaculture also means starting with yourself and your community and making sure that things become sustainable. For example, Matthias Fritsch designs concepts and prototypes for an indoor worm compost or a compost toilet that can be placed in your own bathroom. These are sculptures that also function as everyday objects and encourage imitation. They are true lifestyle objects that, like individual lifestyles, have a symbolic character, and can infect other ways of being by their mere conception.

Weathering Networks--"Solar Protocol"

Another example of the current turn towards the earth, its connection with the cosmos and its energies is found in Tega Brain, Alex Nathanson and Benedetta Piantella's networked platform "Solar Protocol" (2021-24).[7] The principle of this project is based on solar powered servers playing host to their platform. (Clients of) The visitors of this platform are automatically directed to servers located in areas where there is the most sun and therefore the most power available at a given moment. In contrast to the usual DNS protocol system, it is not the fastest server that responds here, but the one that works with the most solar energy. The artists call this environment-based principle "natural intelligence rather than artificial intelligence."[8] The "Solar Protocol" website describes the project and informs users which server is currently operating the project, it is accompanied by a picture of the location of the computer, e.g. computer with cat. The more you use the site, the more different server nodes you see. It becomes clear that the project, in which you can participate yourself as a server operator, is a network of committed people and their technologies. They make the operation of the website possible together: abstract transactions in the black box of the Internet become a web of community-based stewardship and carework (the operators are called "stewards"); this creates relationships of appreciation and feelings of gratitude. Simultaneously, a technical foundation built on weather lifts the network out of the human realm and shows a network dependent on cosmic influences and human and technical influences. I call this weathering networks: infrastructures that, with their weather-related vulnerability and unpredictability, do not obfuscate that they are fundamentally based on dynamic physical forces. As a network user, this means that web access can sometimes be shaky, the website may not contain any images or be down--disruptive moments that have been all but eliminated in the bandwidth frenzy of recent years. Of course, all infrastructures and technologies are based on vulnerable physical conditions. But Big Tech can cover this up or displace it by using massive amounts of energy--until the infrastructures, or the economy or the climate collapse. Because someone always pays when physics is displaced. "Solar Protocol" makes this clear in its imperfect charm.

However, there is one technical aspect that is not addressed in "Solar Protocol": although the individual web servers run on solar power, the project still relies on internet infrastructure (cables, connectors, switches, transponders etc.) that is powered by grid power which is presently outside the scope of "Solar Protocol. That's why I asked Tega Brain if

7 http://solarprotocol.net
8 Ibid.

the concept of controlling internet traffic via a sunny server, no matter how far away it is from the client, would stand up to a life cycle assessment: perhaps the sun seeking principle uses a lot more power than the conventional DNS protocol because it has to go around the world first (which may happen too, but is usually less the case with the conventional speed-based system, as speed is usually guaranteed by proximity)? I wondered if it "is proven that the web servers and not the transmission grid needs more energy? Because if not, your project might be based on the wrong technical principles". She answered this as following:

"I'm sure it really depends on the application you are talking about (heavy computational processes like AI and crypto would dwarf the power used in transmission). But for a small website, yeah, maybe more power is used to transmit it than is used by the server. I don't know. But we are not saying that our project is carbon neutral. It's definitely not (think of the energy/carbon used in manufacturing), but we are demonstrating a community hosted website that is not stored and processed by data centers, but rather on small solar systems. Our small solar systems demonstrate another way the internet can be configured, where energy production and distributions are the guiding principles in the design."[9]

Tega Brain's answer makes it clear that "Solar Protocol" is about more than just technically and ecologically optimized solutions. It is not intended to be a purely engineering based achievement, even if its function plays a fundamental role in its conception:

"So although we can't make any claims of how light weight it is or how much power it saves, or how much power it still relies on in transmission, it does demonstrate another way things could be designed. We call this kind of work, energy-centered design".[10]

As we see through her answer, the piece is about showing that it is possible to do things differently within the framework of the great capitalist machine. They may not be perfect or mutually exclusive to existing structures, but they are performing power otherwise--and thus have social, symbolic, artistic, activist, "didactic"[11] power; political power. In principle, "Solar Protocol" does nothing other than what the name says: it determines the rules of the transmission of data and power, and it performs and narrates this. This is reminiscent of the early practices of net.art and net.radio, when being uniquely infrastructurally connected, affecting the flow of making something together, experimenting with atmospheric signals and electromagnetic waves, and the joy of the energies this released counted in some ways more than narrating specific content.[12]

Now with a sober and occasionally disillusioned view of technology, its potentials and monopolies, we regard the climate emergency, and all the missed opportunities which are already in our rear view. Still, surfing the World Wide Web and stumbling across something as crude and plain as "Solar Protocol"--the inclusion of the other in the fabric of Big Tech business--is a small miracle worth enjoying.

9 Tega Brain in the e-mail to Yvonne Volkart, August 20, 2024
10 Ibid
11 Ibid
12 Eric Kluitenberg, "Media without an Audience, Amsterdam: subsol 2000, http://subsol.c3.hu/subsol_2/contributors0/kluitenbergtext.html

Infecting and Affecting

Both "Alt Net" approaches discussed here, make references to the earth, and choose radical new forms of interspecies collaboration: while one approach transforms the media art site into a mushroom lab and draws attention to our underestimated "companion species", the other focuses on reimagining technical functions and dependencies of the internet and makes it dependent on the sun. Both approaches play with the strategic renaturalization of modern infrastructures and the normalization of the intrusion of "nature" into technology and the technosphere. Although both are entangled with cultures of systemic change, neither claims an economic and political change on a big scale. (Because global politics is far too cumbersome.) Rather, they are--in the sense of Félix Guattari[13]--micropolitical and sensorial in nature and operate via aesthetic affections: imperfect artistic practices that simply start doing things a little differently. Through an experimental, playful and creative approach with and without technology, they are reminiscent of the beginnings of net art, in which shared flow and fun were an essential factor in feeling oneself as a part of alternative worlds borne in these alt-net milieus. Both projects are characterized by simplicity and a relaxed form of "authenticity", in which the production methods and technologies involved are precisely reflected. This sets these works apart from many current artistic approaches that attempt to integrate and democratize expanding technologies such as AI or blockchain. However, these approaches frequently fall short in critically examining the necessity of these tools--a task that is essential given the vast resources and extractivist methods involved.

13 Félix Guattari, "Remaking Social Practices," in Pierre-Félix Guattari, The Guattari Reader, ed. Gary Genosko, Oxford and Cambridge, Mass.: Blackwell Publishers, 1996, pp. 262-271.

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