

MYCOLOGICAL METAPHYSICS. FUNGAL TEMPORALITIES AS CREATIVE ACT OF BECOMING

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Abstract

The permeable professional boundaries between art, science and technology are increasingly challenging the perception and understanding of time and space. In particular, the realms of ecology and biology open up new possibilities for a post-anthropocentric, holistic understanding to (re-)contextualize an "Everywhen". In a dialogue-based comparison, the following text contrasts and synthesizes Alfred North Whitehead's process-philosophical theory with Merlin Sheldrake's mycological studies on mycelium, the vegetative part of fungi. The focus is on the temporal understanding with a view to the dynamic and interwoven aspects of reality.

Keywords

Mycelium, Process-Philosophy, Temporal Dynamics, Non-linear narratives, Adaptability, More-than-Human, Mycology, Metaphysics

Introduction

In the face of global warming and socio-ecological precariousness, Western knowledge production in the art and science sector – reflected in institutional infrastructures such as methods, tools, spaces or application guidelines – is increasingly reaching its limits. It is therefore not surprising that current discourses question established methods or (infra-)structures and address the need for open-ended, explorative practices or situated knowledge. [1] Accordingly, artistic practice and theories related to the (post-)Anthropocene, or rather the Symbiocene – as evoked by natural philosopher Glenn Albrecht, for example – have repeatedly spoken of "new materialism" [2], meaning the shift towards the agency and intrinsic logic of matter or so-called 'non-human actors'. Algae, bacteria and fungi, or even hyperobjects [3] such as natural catastrophes, are increasingly becoming collaborators and co-designers in the (artistic) design and epistemological process. The greatest challenge here is probably to recognize the embodied knowledge and teachings of these actors in an appreciative way, especially when their language and temporality function in such a completely different way to the human one. So, what can we learn from non-human actors in relation to spatio-temporal entanglements?

Process and Becoming of Mycelial Networks

In order to understand a temporal pluriverse, or rather an embodied dissolution of past, present and future in favor of a processual understanding of temporality, it is worth taking a look at the world of fungi. Usually only recognized as fruiting bodies, the vegetative part of the fungi, the mycelium, extends as an underground 'root' network of so-called hyphae. Or as the biologist Merlin Sheldrake describes metaphorically: "However, most fungi form networks of many cells known as hyphae (pronounced HY fee): fine tubular structures that branch, fuse, and tangle into the anarchic filigree of mycelium. Mycelium describes the most common of fungal habits, better thought of not as a thing but as a process: an exploratory, irregular tendency." [4] Using the fine network of hyphae, the fungal organism not only perceives its environment, it also literally grows into its surroundings in search of food. Contrary to our human understanding of decision-making processes, however, this process of giving shape and direction is not centralized by means of a brain. Rather, this constant becoming is decentralized and takes place simultaneously at the active hyphal tips in the network. In addition to this decentralized embodied simultaneity, this mostly saprotrophic mode of existence – in other words the nourishment and decomposition of dead, organic matter – opens up a constant process of remediation. As an interface between life and death, fungi thus close a processual cycle of renewal with their composting practice, which ultimately makes a fundamental contribution to life on earth.

But how can we think of a living being that is not characterized by a self-contained physicality, but is in a constant process of adaptation that evolves in relation to its environment and at the same time produces a non-linear, processual temporality? Alfred North Whitehead's process philosophy provides a promising starting point here, in which he describes the fundamental nature of reality not as static, but as dynamic and characterized by process and change. [5] In this way, Whitehead creates a holistic metaphysical system which – in contrast to traditional subject philosophy or materialistic interpretations of nature – does not understand the universe as having arisen from substances or passive matter. Rather, in Whitehead's cosmology, the world or reality is composed of elementary, interlocking and interwoven processes and relationships like a creative organism. Here he outlines 'actual entities' as the fundamental elements that make up the world and reality: "Actual entities' – also

termed 'actual occasions' – are the final real things, of which the world is made up. There is no going behind actual entities to find anything more real." [6]

Mycelial Growth as Actual Occasion

Actual entities/occasions are characterized by their atomic nature, in which there is no before and after and no expansion in the conventional sense. Rather, their existence is a process that takes place outside of time – any temporal or spatial expansion is the result of this becoming, but not its precondition. [7] Rather, those actual entities are germinating nodes of that experience of the world, "that grow out of their relations to the past, achieve some novel aesthetic value in the subjective immediacy of the present, and perish into objective immortality so as to influence the future, contributing whatever value they've garnered to the ongoing creative advance of nature." [8] Analogous to the actual entities in the mycelial network are the hyphal tips, i.e. the active tips in the mycelium network. This is where the direction and growth of the fungal network take place, and they do so in a millionfold simultaneity. To put it another way: The hypha is the constant actualization in the experience of the now, while the rest of the mycelium network represents the embodied, evolved past of the fungus: "A mycelial network is a map of a fungus's recent history and is a helpful reminder that all life-forms are in fact processes not things." [9] As in Whitehead's metaphysics, the mycelial world of fungi is characterized by a continuous pulsating process of fusion. In the synthesis of the grasping of the surrounding world, the individual entities/hyphae constantly emerge and decay, and in their coalescence – in Whitehead's terminology 'conrescence', in the mycological counterpart the process of anastomosis – constantly produce new actual entities: "The novel entity is at once the togetherness of the 'many' which it finds, and also it is one among the disjunctive 'many' which it leaves; it is a novel entity, disjunctively among the many entities which it synthesizes. The many become one, and are increased by one." [10] It is this simultaneity of unity and multiplicity in becoming that is not only metaphysical, but also quite tangible and embodied in the mycelium of the mushrooms, and which represents an instructive figure of thought for the concept of an 'every-when' that also operates beyond human standards.

Myco(r)/rhiza – Shifting Epistemological Metaphors

But how can the first results from this synthesis of process philosophy and mycology be made fruitful for the art world? Despite all endeavors, it is unavoidable to adopt a human perspective in our observations and considerations. After all, the human being has a 'closed' body structure and cannot literally walk through two doors at the same time like a mushroom mycelium – albeit an exciting intellectual exercise. [11] Rather, we are fixed in a chronological sequence of events. Perhaps it is rather the understanding of the

mycelial processes and the process-philosophical theories that are depicted in epistemic metaphors of language use and thus form an epistemological transition. When we talk about metaphors of the genesis of knowledge, especially in a biological context, an investigation inevitably addresses the "rhizome". This term was described as a postmodern guiding metaphor by Gilles Deleuze and Felix Guattari in the introduction to their much-cited book "Milles Plateaux" (1980). Here, the rhizome stands as a decentralized alternative to the western tree logic, which is characterized by hierarchies, centralization and vertical dependencies (e.g. family trees). By contrast, Deleuze/Guattari use the rhizome to describe a proliferating, decentralized multiplicity that refers less to subject-object dichotomies and more to the processual intermediate states of an interwoven network. Make rhizome, write 'n-1' – as a perpetual swan song to an (original) unity. [12] This metaphor and interdisciplinary method literally formed the fertile ground for describing phenomena such as the emerging Internet and decentralized network systems back then and for a long time afterwards. But after almost 50 years, isn't it time to update this metaphor? Particularly with regard to pluriversal cosmologies and their creative potential for artistic production the mycelium as organism and metaphor in conjunction with Whitehead's circular-processual metaphysics of time opens up a promising approach. 'n-1' becomes '(n-1) π ' – pulsating circles instead of open lines in the constant, evolutionary interweaving process of becoming.

Creative Adaptability of Fungi

So if, instead of Deleuze/Guattari's rhizome, we place the mycelium as a metaphor for the genesis of knowledge at the center of our consideration, how would our way of thinking change? What qualities could be derived from this? In addition to interconnectedness, polyphonic simultaneity and multiplicity, the adaptive capacity of fungi in particular appears here as a creative act. As complex adaptive systems, fungal structures find answers to precarious living conditions (e.g. radioactive landscapes), as described in detail by anthropologist Anna Tsing in her book "The Mushroom at the End of the World". [13] That constant process of adaptation, which takes place in a pulsating movement of being-one and being-many, could also be described in Whiteheadian terminology as 'creativity'. As an elementary category, it functions in Whitehead's process philosophy as the unifying principle of reality that underlies all being, all becoming: "Creativity' is the principle of novelty. An actual occasion is a novel entity diverse from any entity in the 'many' which it unifies. Thus 'creativity' introduces novelty into the content of the many, which are the universe disjunctively. The 'creative advance' is the application of this ultimate principle of creativity to each novel situation which it originates." [14] According to Whitehead, creativity is the fundamental principle driving the emergence of new actual occasions. Time – in its evolutionary and unpredictable nature – is marked by the continuous creation of novelty, where each moment brings forth something new that has not existed

before. If, according to this logic, time is originally produced by the continuous, creative act of becoming, then the fungi and their mycelia once again appear to be surprising accomplices: in their erratic, subversive and ephemeral nature, the fungi elude the extractivist claim of immediacy as well as a Western-influenced understanding of linear temporality, which ties in with associations of continuous growth, accumulation, efficiency and speed. [15] A mushroom fruiting body can suddenly shoot out of the ground overnight, only to disappear again for many years,

while the mycelial omnipresence exercises patience and continues to spin its subterranean network of hyphae. A network of hyphae that grows through the soil as it develops, metabolizes dead matter and at the same time provides new nutrients and creative potential for its environment. In this sense, the mycelium itself can perhaps be understood as embodied creativity, whose innovative value is realized in the constant adaptation to its environment in the pulsating interplay of unity and multiplicity in a unifying ‘everywhen’.

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