Figurations of Fungi:

An Exploration of Ethology, Emergence, and Expression in Creative Practice

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ABSTRACT

This paper explores creative practice as a form of embodied, situated, and material research that generates the potential for change. It examines the work of philosophers Gilles Deleuze and Felix Guattari as well as contemporary feminist theorists Moira Gatens, Genevieve Lloyd and Rosi Braidotti. Their philosophical position on bodies, compositions and emergence counters the dystopian views of catastrophe and death that are so pervasive in posthumanist discourses.

Holly Schmidt articulates an engagement with ethological practices that seek to deterritorialize the disciplinary boundaries of art and science. These practices take up the composition of bodies, their speed and slowness, and ability to affect and be affected. Ethology involves creative actions that recompose relations. In meeting that complexity, Schmidt suggests there is potential to recompose contemporary technoculture while developing new ways of making and being in the world that meet the complexity of global issues.

Schmidt looks to the figuration of fungi as a form of expression for its rich potential to create other possible worlds. Being neither plant nor animal fungus has created much debate and confusion in the history of taxonomic classification. It is the many ways in which fungi evade the logic of Western classification and organization that suggests it is a figuration worth exploring. Fungi are explored through Schmidt's creative engagement with a variety of communities. Schmidt's work varies, as does her medium of expression, which includes the spatial practice of walking, with the relational practices of coordinating social events, and the architecturally influenced practices of building forms for interaction.

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Introduction

Creative practice is a form of embodied, situated, and material research that generates the potential for positive change. In thinking with philosophers Gilles Deleuze and Felix Guattari as well as contemporary feminist theorists Moira Gatens, Genevieve Lloyd and Rosi Braidotti, I have engaged deeply with their non-dualist, anti-anthropocentric concepts of bodies, compositions and emergence. Through this engagement I have come to approach creative practice as a form of research that allows for the rational investigation of the imagination. This is with an understanding of the imagination that stresses the reality of the mental, as the imagination is seen as the awareness of our own bodies in relation to other bodies. In keeping with this understanding, I have taken up Deleuze's approach of figuration in my creative practice. As Braidotti describes,

> The notion of 'figurations,' the quest for an adequate style, as opposed to 'metaphors', emerges as crucial for Deleuze's use of the imaginations as a concept. Figurations are forms of literal expression which represent that which the system had declared off-limits. There are situated practices that require awareness of the limitations as well as the specificity of one's locations. They illuminate all the aspects of one's subjectivity that the phallogocentric regime does not want us to become. This kind of philosophical creativity operates a shift of paradigm towards a positive appraisal of differences, deviances, or anomalies, not as an end in themselves but as steps in a process of recomposition in technoculture (Braidotti, Bio-Politics 170).

I see my creative practice as one of the situated practices described by Braidotti. As an artist that works along the boundaries of art and science, I am aware of the limitations and specificity of these contexts. My interest lies in the composition and re-composition of these domains through a positive exploration of the differences. The continual recomposition of technoculture, as the interaction between politics, technology and culture, is critical due to the complexity of current global environmental issues and the increasing pressure to develop new ways of making and being in the world that meet this complexity. Rather than indulge dystopian views of catastrophe and death that are so pervasive in posthumanist discourses, I am interested in the pragmatic orientation of these theories that move towards difference and embrace change instead of fear. I have chosen along with Braidotti and others to focus on the generative forces of life.

To do this I engage in ethological practices that deterritorialize the disciplinary boundaries of art and science. Deleuze first introduced the concept of an ethological approach in response to seventeenth century philosopher Baruch Spinoza's *Ethics*. Among many twentieth and twenty-first century theorists, Gatens, Lloyd and Braidotti took up this text in their writing on ethics. It is through the work of these contemporary theorists that this paper engages with the work of Spinoza. Deleuze picks up on ethology as the scientific study of animal behaviour but transforms it into a distinct philosophy. Deleuze's ethological practices take up the composition of bodies, their speed and slowness and ability to affect and be affected. An ethological orientation is monist as it sees all bodies in the process of becoming on a plane of immanence. A body can be anything but is only something in relation to other bodies. In this sense, bodies are continually in the process of composition, decomposition and recomposition. Ethological

practices involve creative actions that compose and recompose assemblages in a move towards sociability and community. In my research, these practices vary as the mediums of expression vary. I work with the spatial practice of walking, along with the relational aesthetics of social dining, and the architecturally influenced methods of building form.

In these practices, I have turned to fungi as a form of expression for its rich potential to provide glimpses of other possible worlds. Being neither plant nor animal, fungus has created much debate and confusion in the history of taxonomic classification. The Swedish botanist, Carl Linnaeus, baffled by spores or "seeds" that displayed both plant and animal characteristics under the microscope, placed certain fungi in a category termed chaos (Ainsworth, 23, 251). It wasn't until much later that these organisms were separated into the kingdom of fungi but still these organisms continue to generate questions that challenges the very definition of an organism. It is the many ways in which fungi evade the logic of western classification and organization that suggests it is a figuration worth exploring.

Vanitas

In the initial stages of my research, I created small scale 'architectural models' of imaginary cities out of dough. In the mornings I mixed multiple batches using water, salt, cream of tartar, oil and flour. I kneaded the dough while still hot from the stovetop, and then wrapped it in wax paper to take to my studio. It was soft, pliable, and creamy in its colour and texture. From this mixture emerged cities comprised of tall towers, industrial parks, bridges, walkways, stairs and docks. I populated these environments with plastic figures used by hobbyists and architects in their scale models to evoke different narratives of evacuation. The need for evacuation was at first ambiguous and then obvious as the dough started to mould and the city decompose.

This series began with an initial experiment where I sculpted a city scene ten inches in circumference. I placed a jar over top of the city, covered it with a dark cloth and placed it by the radiator. Over the next week, white cottony fuzz began to grow swallowing up the bridge and moving over the buildings like a fog. I took photographs with a macro lens, which made this tiny world seem infinitely large. From the lens I could see strands reaching out from the surface of the mould. These strands became darker and denser over the weeks to come as the mould colonies flourished.

In the midst of this body of work, I spent the summer in the Netherlands where I visited the Rijksmuseum and encountered an expansive collection of Dutch still life from the seventeenth century. Many of these paintings depict skulls, hourglasses and fading flowers as vanitas, symbols of superficial appearances and vanity. A particular vanitas, *Still life with Fruit and Flowers* by Balthasar van der Ast depicting a lush scene of fruit on a platter caught my attention [Fig. 1]. The grapes, apricots and apples appear to be

from a nearby orchard with leaves and branches still attached. The table on which the platter sits is covered with a fine cream cloth. A porcelain vase of flowers sits to the right of the platter. A few of the flowers including a yellow tulip are laid out on the table. From a distance the scene is a pleasurable view of ripe fruit and flowers but when one moves in closely one can see that a range of insects and other creatures appear to have overtaken the table. A spider hangs from the dark recesses of the bouquet. A grouping of three shells appears to be alive as a hermit crab emerges from one golden coloured shell. The fruit to the front of the platter is covered in drops of water, while to the back an apple is forming dark spots and an insect has eaten the leaves.

This scene, like all vanitas, is intended as a reminder of the transience of life. It is a caution, a warning about succumbing to the pleasures of life and surface appearances. It is a reminder of one's mortality and the importance of looking towards life in the hereafter not this present earthly realm. In many ways, I feel that the models I created carried these overtones of the transience of life but not in the same sense as the Dutch still life tradition. In my narratives, the forces of life emerging into the highly planned and controlled urban environment initiated catastrophe. The people in the scenes appear to be both the perpetrators and the victims of the decomposition of the world. In many of these works this breakdown was captured with real time video feeds on computer monitors. The live broadcast of this slow destruction created a sense of irony as the world is being monitored in the event of its downfall, so slow it can barely be seen at all.

Upon reflection, these scenarios of catastrophe are deeply unsatisfying. They do have the intensity I felt when I saw the first signs of mould growth in my first experiment. They produced sensations of fear and anxiety for some and for others a

sense of irony or humour, neither gesture being particularly satisfying. To understand this insight better, I turn to Rosi Braidotti's critique of the humanist orientation towards death as an examination of the limits of the human.

> No reason other than the sterility of habit justifies the emphasis on death as the horizon for the discussions on the limits of our understanding of the human. Why not look at the affirmative aspects of exactly the same issue? Speaking from the position of an embodied and embedded female subject I find the metaphysics of finitude a myopic way of putting the question of limits of what we call life. It is not because Thanatos always wins out in the end that it should enjoy such conceptual high status. Death is overrated. The ultimate subtraction is after all only another phase in a generative process (Transpositions 40).

As Braidotti outlines, psychoanalytic thought posits the impossibility of the human subject to imagine life without it. In my models, there is the potential for human destruction by the forces of the mould growth and its generative processes. These models posit a world without humans that generates a fear of the emergent forces of life, hence my dissatisfaction. Along with Braidotti, I share a greater interest in the affirmative aspects of life and the potential to explore the limits of humanist thought through those aspects. I also share with feminist scholars, Braidotti, Gatens and Lloyd a passion for the work of Spinoza, Deleuze and Guattari in that they place emphasis on the notion of the "subjectless subject," who is continually becoming in relation to other subjects on the plane of immanence. These scholars and this body of thought affirm the generative force of expression of mould, the great decomposer.

The dark spots on Balthasar's apples express the positive forces of the earthly realm, rather than the melancholy of transience reinforced by the power of commercial, governing and religious bodies of the enlightenment. As the saprobic fungi feeds on the once juicy apples, it produces nutrients for the growth of other bodies. It is an affirmation of the generative capacity of fungi and it's power to shift between the modalities of living and non-living.

I left behind my cities in search of modes of practice that would affirm new ways of making and being in relation to the figuration of fungi.

Ethology

As I walk through this old growth forest, I am seeking out fungi. I stray off the pathways and into denser woods. Crouching low, I keep my eyes to the ground while nudging the needles on the forest floor with my foot hoping to find a mushroom beneath. This is one of many walks or forays that I have undertaken recently. Initially, I went out with a naturalist from the local Mycology Society who delivers interpretive tours. He usually meets participants at different parks where he leads them into the forest to look for the many varieties of fungi growing there. The participants are diverse coming with different interests and forms of knowledge. The naturalist provides information such as the common name and the species type while pointing out the distinct form, colour and structure of each fungus.

I always listen attentively on these tours, mentally mapping where each of the fungi discussed are growing. Later in the week, I return and walk through the forest looking for the fungi recently under discussion. At first I brought a guidebook to help me identify the mushrooms. I would photograph them, look them up, and try to locate the significant features of their form. I even collected samples, creating my own small herbarium in my studio.

Many of these practices were developed in the eighteenth century as a response to the perceived abundance of variety in nature. Naturalists turned their focus to a "truth-to nature" approach that sought the "types" and "characteristics" underneath the irregularities found in nature. The skill of a naturalist was in their ability not to be distracted by the uniqueness of the particular specimen at hand rather they were to discipline themselves to seek only what made the specimen an idealized representation of

that type (Daston and Galison, 67-70). These systems of classification describe the perceived forms and functions of bodies. But these systems, as Michel Foucault points out in regard to the human sciences, do not merely "describe but also serve to organize bodies, their powers and capacities" (Gatens, Spinozist Lens 163).

The organization of powers and capacities is important to consider in relation to all bodies, not only human bodies. These systems of biological classification not only describe organisms, they also impose hierarchical relations that ensures the supremacy of humans. The force of this anthropocentrism impacts the perceived possibilities of relations between all bodies. For this reason, I turn to the anti-juridical tradition of philosophers including Foucault, Deleuze, and Spinoza. For them, "What defines this tradition is a commitment to thinking against a fundamental proposition of humanist philosophy, namely, that sociability requires the organization of an individual's natural affects by a power that transcends the natural condition…" (Gatens, Spinozist Lens 164). In their view the juridical stance posits a world comprised of two planes "first, a plane of immanence, second, a transcendent plane which functions to organize and socialize the first" (Gatens, Spinozist Lens 165). Following Spinoza, Deleuze argues for the "univocity of Being" on a plane of immanence. For Spinoza there is no transcendent being: "including God as a transient cause, final causes, the teleology of nature or history, a transcendent morality, and so on" (Gatens, Spinozist Lens 165). In this monist view there is only the plane of immanence and its continual becoming.

It is this philosophical shift from dualism and the logic of Western thought that seeks to categorize and classify bodies according to form and function that is critical to the formulation of my research and the different modes of practice I take on. In

acknowledgment of Foucault, I believe that ways of knowing are bound up in ways of being. It is through practices of the self that the self makes and remakes the self. By inhabiting the practices for naturalists, I was aware that I was making a certain kind of scientific self. This set of methods emerged in the eighteenth century but are still present in contemporary practice as I observed in my recent forays into the forest. Science historians Lorraine Daston and Peter Galison identify a type of scientific self that values organization based on idealized forms and fears the sheer variety and abundance of the world. It is also a self that sees the laws of nature as expressive of the laws of God or some other transcendent cause (67-69). By inhabiting the practices of naturalists, I adopted a dutiful fascination in the abundant forms of fungi and their classification embedded in this scientific self, all the while, becoming increasingly aware of the many ways this organism evades classification and confounds Western logic. My engagement with these practices was the undoing of this scientific self.

I was strongly drawn instead to the ethological approach put forward by Deleuze as a contemporary way of thinking Spinoza's plane of immanence. "Ethology is first of all the study of relations that of speed and slowness, of the capacities for affecting and being affected that characterizes each thing" (Deleuze, Spinoza 125). For Spinoza, the physics of bodies is a synchronization of particles where the motion and rest of those particles holds a body together as an individual body. Each body has different capacities to affect and be affected that are always in flux as a body is always in the process of becoming. For this reason, ethology is anti-anthropocentric in that it does not privilege human bodies over other bodies. For Deleuze, "A body can be anything; it can be an animal, a body of sounds, a mind or an idea; it can be a linguistic corpus, a social body, a

collectivity" (Deleuze, Spinoza 125). With this definition in mind, ethology is the study of relations between bodies in all of their complexity.

Perhaps most important from my perspective as an artist is that ethology supports a view of thought that is embodied. Spinoza was critical of Descartes's separation of mind and body, arguing that "the body cannot determine the mind to thinking, and the mind cannot determine the body to motion, to rest or anything else….'"(qtd. in Gatens, Spinozist Lens 166) According to Gatens's and Lloyd's interpretation of Spinoza's concepts of imagination and reason, the mind is the "idea" of the body while the object of the idea is the body. This is a radically open body, however, as they go on to describe that the body of Spinoza's philosophy was not self-contained: "In being aware of its body, the mind is aware not just of one material thing but of other bodies impinging on that body. It is aware, that is of its own body together with other bodies and other bodies together with its own" (Gatens and Lloyd 14). Based on this philosophical orientation ethology is an embodied approach to the relations of bodies. It could not be otherwise.

In Deleuze's discussion of ethology he references studies done by early twentieth century zoologist, J. von Uexküll, that seek to describe animal worlds based on their power to affect and capacity to be affected. Deleuze suggests that these studies are the precursors to the contemporary field of ethology, which studies animal behaviours across different species and is ultimately quite different from the ethology Deleuze outlines. One such study of Uexküll's focuses on the life world of the tick. Uexküll describes a scene in the countryside where,

> This eyeless animal finds the way to her watchpost with the help of only her skin's general sensitivity to light. The approach of her prey becomes

> apparent to this blind and deaf bandit only through her sense of smell. The odor of butyric acid, which emanates from the sebaceous follicles of all mammals, works on the tick as a signal that causes her to abandon her post and fall blindly downward toward her prey. If she is fortunate enough to fall on something warm (which she perceives by means of an organ sensible to a precise temperature) then she has attained her prey, the warm-blooded animal, and thereafter needs only the help of her sense of touch to find the least hairy spot possible and embed herself up to her head in the cutaneous tissue of her pray. She can now slowly suck up a stream of warm blood (qtd. in Agamben 46).

For Deleuze, there are three affects of the tick outlined in this description, the tick's perception of light, smell, and temperature. The tick's world is "A world with only three affects, in the midst of all that goes on in the immense forest" (Deleuze, Spinoza 124). As philosopher Giorgio Agamben suggests, for Uexküll, there are a number of environment-worlds or *Umwelt* acting in relation to others like a musical composition that make up the forest: "There does not exist a forest as an objectively fixed environment: there exists a forest-for-the park ranger, a forest-for-the hunter, a forest-for-the-botanist, a forest-for the wayfarer, a forest-for-the nature-lover, a forest for-the carpenter, and finally a fable forest in which Little Red Riding Hood loses her way" (Agamben 41).

Uexküll's studies are a deep exploration of varied perceptual worlds rather than a single objective world filled with hierarchically arranged plants and animals. His studies involve a kind of "thinking with" these organisms or as he phrased it "excursions into unknowable worlds." It involves the process of "getting inside of it" that scientist,

Evelyn Fox Keller describes in the work of geneticist Barbara McClintock. She did "not try to separate herself from her objects of study – corn cells to stay more "objective." She imagined herself more 'among them' herself reduced to their size, perhaps a way of becoming one of them" (Fox Keller 300). McClintock's process is similar to Uexküll's because their approach is deeply embodied and material as they open themselves to the world.

The forest of my walks shifts from the forest-for-the-naturalist to the forest-for-the-ethologist. The guidebook stays at home and the sketchbook comes out. I am prepared for a kind of deep engagement with the perceptual world or *Umwelt* of the fungus. Even though most of the fungi that I will encounter are deep below ground, I continue on my excursion into its world, defying the dictum that to see is to know.

The fungus is in the dark soil where daylight never reaches. It does not require the sun to sustain itself like a plant does, rather it seeks out that which is carbon based to sustain itself. Comprised as a single cell walled strand it has no mouth to grasp with, no eyes to see its way, and no ears to hear my footsteps above. Acting as a large external stomach, it releases enzymes into the soil, breaking down organic compounds to feed upon. As the acids break down, the compounds are absorbed through the cell walls. It continues to grow, branching and forking at its tip, sending out thread-like tendrils called hyphae. When these hyphae reach a critical mass they become an interconnected network called a mycelium. It is an expansive surface with very little volume, a highly sensitive biochemical membrane.

To summarize its affects — the first has to do with its ability to seek out or sense carbon; the second is to grow towards carbon and away from disturbances of the soil by

dividing and branching out to create a mass; and lastly to be permeable to the passage of nutrients between the soil and its body. Simple enough, but Deleuze reminds me that a body is never separate from its relations in the world. "What does it "take" into its world? Every point has its counterpoints: the plant and the rain, the spider and the fly" (Deleuze, Spinoza 127).

The fungus described above bears fruit, commonly known as the pine mushroom. The fruit rises above ground, its form changing as it matures. Its thick white stalk and cap are partially buried in the needles of its counterpoint- the pine tree. The mycelium network has grown towards and around the roots of the pine. Penetrating the epidermis of the cells in the tree roots, it connects with the cortex providing greater access to water and other nutrients. In return the mycelium feeds upon the carbohydrates or sugars of the tree. The membranes of the root open up to the hyphae of the mycelium, passing nutrients back and forth. Similar to Deleuze and Guattari's description of the wasp and the orchid, the rhizome and the tree are bound together in their relations (Deleuze and Guattari, Thousand Plateaus 10). The mycelium-becoming-tree and the tree-becoming-mycelium are bound in continual deterritorialization and reterritorialization. The mycelium moves both towards and away from the tree.

The mycelium is all surfaces with little volume. It is as radically open to the world as is Deleuze and Guattari's "subjectless subject." It is a kind of cartography that they propose for the mapping of individual bodies on the plane of immanence. The longitude being the sum of all the material particles that come together in relations of speed and slowness, while the latitude is the affects it is capable of at any given moment and the degree of power in that potential (Gatens, Spinozist Lens 168). With this

mapping, bodies are individuated even though they are in constant relation to one another. These bodies come into composition with one another, often forming larger assemblages: "An organ may be seen as a body, made up of a great number of simpler bodies, that is, in turn, part of an individual human body. Such modal existences may, in turn, constitute the extensive parts of broader social and political assemblages that will have their own characteristic intensive capacities" (Gatens, Spinozist Lens168). Deleuzian cartography individuates bodies and assemblages of bodies, making ethological experimentation with the composition, decomposition and recomposition of bodies on the plane of immanence possible.

From my ethological experiments in the forest, a project emerged, an interpretive walk that strays from the path of the naturalist. It is a walk that draws people into the underbrush and the world of fungi. It is open to people of all backgrounds, interests and ages.

In the past, I have worked with walks as a form of practice that actively involves people in the act of creating and recreating the work. For participants the experience involves walking through urban spaces in an attempt to connect non-linear narrative fragments that attempt to synchronize the historical past of a place with the current moment. In these experiences there is always a sense of dissonance between the described historical moment and the sights, scents and audible vibrations of the present. Architectural historian and theorist, Jane Rendell suggests that walking as a form of critical spatial practice is powerful because,

> Through the act of walking new connections are made and remade, physically and conceptually, over time and through space. Public

> concerns and private fantasies, past events and future imagining, are brought into the here and now, into a relationship that is both sequential and simultaneous. Walking is a way of at once discovering and transforming the city; it is an activity that takes place through the heart and mind as much as the feet (Rendell 190).

As Rendell suggests walking is an embodied practice that engages in movement through time and space. It is a form of practice that has been put to powerful use by many art movements historically such as the surrealists in their search for chance encounters, or the dérives of the Situationists who played with the psychogeographical contours of the built environment. In contemporary spatial practice, artists such as Janet Cardiff and George Bures Miller have created sound walks for various locations around the world. These walks are deeply affective as they use a binaural sound recording method that places Cardiff's voice as the narrator "close" to the ears of the listener [Fig.2]. The background sounds are recorded on site so there is a blending between the current moment and the recorded moment that according to Cardiff and Bures Miller creates a new world (Cardiff and Bures Miller). While their walks emphasize affect over potential encounters, all of these practices historically have taken the physical movement of a body from one place to another as their medium of expression.

It is the rhizomatic impulse, in its pursuit of multiple trajectories and connections that makes these practices deeply attractive to me. As we move through the forest, I share my ethological experiments, drawing people into the forest from the perspective of various fungi. I have a loose idea of where the walk will go through the forest but also an

interest in what may emerge and how that changes the cartography of the group and the potential lines of flight to come.

Like many walks initiated by artists, the visual is not primary. The forest is a highly sensory environment with a rich array of scents, textures, and sounds. As a group, we stop to listen for frogs and other amphibians. We may hear some or we may not. Both the sound and the silence present a significant entry point into the world of one of the most primitive fungi, the chytrid. In discussing the chytrid fungus on the walk, its world might sound something like this…

A zoospore with a whip-like tail slides through the murky pond water. It seeks out the soft permeable skin of a pacific chorus frog. Embedding itself into the skin cells of the frog it feeds upon its keratin proteins. Overtime, it matures into a static plant-like form that produces more zoospores, which are expelled on to the surface of the frog's creamy underbelly. Some of the zoospores swim away while others seek out keratin from their birthplace. Eventually, the chytrid seal off the permeable skin suffocating the frog. The zoospores swim away seeking another source of keratin.

This fungus is a smaller body that comprises a larger body and even an assemblage. This form of chytrid originally lived in close relation with the african clawed frog, which was exported worldwide for use in pregnancy tests. With the frogs came the fungus. This zoospore shifted the composition of bodies in entire ecosystems around the world.

There are multiple entry points into the forest and into the worlds of various fungi. These worlds overlap creating a composition of affects like the musical score described by Uexküll.

I believe that encounters in the forest with fungi, even those that can't be seen, can be transformative for people. Artist Brandon Ballengée, when discussing the ecology fieldtrips and study days he's organized for the public, has also noted this transformative effect. Ballengée describes himself as an ecological artist or bio artist who is working as a primary research biologist. His work over the last decade has been the study of the deformation of amphibian populations in North America and Britain. According to Ballengée, what makes his work unique from a typical field biologist is that he involves the public in his work by taking them out with him to conduct surveys. This participatory side of his practice is a way to engage people in the sciences: "It's a way to get them to interface with an environment in a way that they wouldn't probably normally interface with by catching tadpoles and taking the time to really look at them and hold them and kind of engage with a different life form" (Ballengée Interview). His practice is hybrid in that it combines art and science as it draws people into discourses about the environment. His walks create new relations between bodies while deterritorializing the disciplines of art and science.

Compositions

The Mycology Society hosts a number of events in addition to their interpretive tours and forays, such as the annual mushroom show and the "Survivors' Dinner." The mushroom show is a popular event attracting a wide range of people. Members of the society collect mushrooms for identification and display at the show. Speakers are invited to lecture on a range of topics for both the amateur and specialist mycologist. An outdoor kitchen is set up for cooking demonstrations. Highly prized mushrooms such as the pine mushroom, otherwise known as the matsutake, are tossed up in a wok with garlic and oil while a line of people with paper cups in hand wait to get their mouthful. There are numerous signs everywhere telling me that mushrooms can be poisonous and nothing should be eaten without proper identification. This reminds me that the name of the Survivors' Dinner is partly in jest and partly a sign of respect for the potential affects of mushrooms.

Something these amateur mycologists understand is that bodies exist in relation to one another. These relations are dynamic and mobile producing continual variation on the plane of immanence. An ethological approach concerns itself with the composability of these relations, as well as their longitude and latitude. These relations can cause various affects that can increase or diminish a body's affects.

> Bodies of all sorts are in constant relations with other bodies; some of these relations are compatible and give rise to joyful affects which may in turn increase the intensive capacity of a body; others are incompatible relations which give rise to sad or debilitating affects which at their worst may entirely destroy a body's integrity. A third sort of relation occurs

> when two bodies encounter one another in a non-reciprocal manner such that the more powerful body captures the less powerful. Such encounters enhance the capacities of the more powerful body at the expense of the powers of the weaker body (Gatens, Spinozist Lens 169).

Gatens goes on to suggest that eating is a quintessential example of relations where one body is enhanced at the expense of another (Spinozist Lens 169). While the consumption of mushrooms does not destroy the fungus, mycologists understand that mushrooms that serve as sustenance at one time may, at another time, be poison. In the case of some wild mushrooms, people have eaten them for years only to dine on them one evening and have an extremely adverse reaction. As relations are dynamic, the compositions between bodies shift and change, toxins from the mushroom build up in the body, a threshold is reached and the body reacts to the mushroom as poison.

The affects of fungi on the human body have a central place in many cultures globally as mushrooms have been utilized for culinary, medicinal, and spiritual purposes. Early ethnomycologists such as Richard E. Schultes studied the use of psilocybin mushrooms in the shamanic ceremonies of indigenous Mesoamericans. These ceremonial practices based on the hallucinogenic affects of certain mushrooms are thought to have an ancient lineage tracing back to the Aztecs and Mayans (Stamets, Psilocybin 11-12). By altering consciousness, the mode of human being is also changed, extending the powers or capacities for the body to produce and be affected by these visions. In many ancient cultures these visions were thought to be revelatory or transformational in their affect. Medicinal mushrooms also hold a significant place in many Asian cultures. In Japan, China and Korea, the reishi mushroom is revered for its

powers of promoting human health, longevity, wisdom and happiness (Stamets, Mycelium 233). The relationship between fungi and human health has been cultivated through the processing and preparation of food in Asia for centuries. Some grains such as rice are deliberately infected with Aspergillus Oryzae or koji in fermentation processes to create foods such as miso and sake. These fermented foods are thought to be important in disease prevention and the maintenance of a healthy ecology inside the human body. The interrelations between humans and fungi are varied, complex and dynamic.

These wide ranging affects and compositions among humans and fungi further illuminates the potential for ethological experimentation over a biological approach that organizes and controls affects. According to Gatens's reading of Deleuze,

> Ethology reveals the compossibility or 'composability' of individuals whose natures agree, in at least some respects…Individuals who collectively combine their powers have selected out from nature that which they may unite harmoniously, rather than engage combatively, in order to form a more extensive body with new powers. Such selections exhaust the scope of human freedom precisely because they involve becoming the cause of one's encounters with others and thus of acting rather than being acted upon. As Deleuze writes, "[i]t is no longer a matter of utilisations and captures, but sociability and communities (Gatens and Lloyd 102).

In the instances above cultures have sought out harmonious relations with fungi. Many of these relations, such as shamanic rituals, involve combining with fungi to create a

more extensive body with new powers. This ethological perspective that seeks out affirmative encounters sits in distinct opposition to the posthumanist discourses referenced by Braidotti, that posit a view of human omnipotence afforded by technology and its counterpoint which is the fear of the unwieldy generative forces of mutation through bodies such as viruses, bacteria, and yes, even fungal spores. (Braidotti, Bio-Politics) I believe this fear of generative forces drives biomedical explorations to continue to identify, manipulate and control microorganisms. This attempt to control can be seen in mycologist Paul Stamets's research into the agricon fungus, found in the old growth forests of the Pacific Northwest. He submitted samples of the fungus to the American Defense Department's Bioshield program for testing. The agricon fungus turned out to have a powerful resistance to the smallpox virus, which is feared for its potential use by terrorists. Stamets filed a patent on the agricon extract and is now attempting to produce it for commercial sale to governments around the world (Stamets Interview). While I respect Stamets's work as a mycologist, I find his research efforts into agricon problematic as it emphasizes the utilization and capture of organisms for the purpose of combative rather than harmonious relations. For me the importance of ethology is its orientation towards sociability and community and away from utilization and capture. A Deleuzian cartography does not attempt to predict relations between bodies or more complex assemblages such as the state in an attempt to control them. Rather it embraces the generative forces of life in all its uncertainty. Ethological experimentation engages with this uncertainty and seeks out what could always be otherwise when there is the freedom to think and therefore exist differently.

In this way the ingesting of mushrooms can be seen as an ethological experiment in the composition of bodies. To dine on a mushroom is to share in the fruit of the fungus and the nutrients it has absorbed through the soil. It is also, as the Mycological Society would suggest, a way of coming into composition with those that share interests and pleasures. To eat mushrooms is a way to sustain the body but also to animate the senses and create an awareness of human and fungus relations. My interest in the act of ingesting mushrooms in the company of others brought about a purely fungi composed meal of ten small courses for ten diners. A chef from Quebec who recently recovered from a near fatal fungal infection designed the recipes. They include dishes such as miso-braised shitake, lobster mushroom salad, and a porcini mushroom terrine. His participation is a reminder of both the joyful and sad affects of fungi in relation to the human body. The emphasis of the dinner is on the act of sharing food in a convivial manner that emphasizes the relations between.

The performative act of dining has a long lineage in art and cultural history. Many artists have focused on the production, preparation or consumption of food as a performative act. As Barbara Kirshenblatt-Gimblett suggests,

> As a sensory experience, taste operates in multiple modalities – not only by way of the mouth and the nose, but also the eye, ear and skin. How does food perform to the sensory modalities unique to it? A key to this question is a series of dissociations. While we eat to satisfy hunger and nourish our bodies, some of the most radical effects occur precisely when food is dissociated from eating and eating from nourishment. Such

> dissociations produce eating disorders, religious experiences, culinary feats, sensory epiphanies, and art (2-3).

In the 1930s the Futurists based their culinary performances on the sensory aspects of eating. As Kirshenblatt-Gimblett suggests, they separated food from sustenance through various means of sensory disassociations. One recipe "White and Black" called for an empty stomach for "a one man show on the internal walls of the Stomach consisting of free-form arabesques of whipped cream sprinkled with the lime-tree charcoal (Kirshenblatt-Gimblett 7). " The stomach became the canvas for the food and digestion the process of drawing. Other performances involved the mixture of contrary sensual experiences such as the "Tactile Dinner Party" where diners were asked to place their heads into a bowl of salad thereby activating the skin on their faces. Salvador Dali chose to focus on the more visceral processes of masticating, digesting and excreting making the interior of the body the main focus of the experience. As Dali claimed, "All my experiences are visceral. I hold visceral impulses to be the supreme indicators." (qtd in Kirshenblatt-Gimblett 8). For Dali, eating was an embodied experience where the gut moves the head to thinking in true Spinozist fashion.

Work with food as a medium was revisited in the 1960s and 70s in various "happenings" and events. Perhaps one of the most notable occurrences was the establishment of a small corner restaurant called *Food* in SoHo by artists Gordon Matta-Clark, Tina Girouard, and Caroline Goodden in 1971. *Food* was always in flux and so was the menu. Different artists cooked on different days, each bringing their own flair to their work. One of Matta-Clark's more famous dishes was the *Bone Dinner* comprised of oxtail soup, roasted marrow bones and frogs legs. Once the meal was complete, the

bones were washed and strung into a piece of jewelry for the diner (Kennedy 1). In many ways the restaurant was a utopian enterprise where people could eat for little money while getting fresh local food with an artistic edge. According to Gooden,

> Though we consumed food, Food consumed us…It was a free enterprise which gave food away much too freely…but the joy is the idea. The idea, as an idea, worked. It was beautiful, nourishing, vital, stimulating new concept, which was a living, pulsating hub of creative energy – and piles of fresh parsley (qtd in Kennedy 2).

The energy of *Food* came out of the social situation and the people it brought together as much as the food itself. This notion was not lost on contemporary artist, Rirkrit Tiravanija best known for his gatherings where he served Thai curries under the banner of relational aesthetics in the 1990s. Critic Claire Bishop describes Tiravanija's works as a hybrid between performance and installation. Tiravanija typically transforms the gallery space into a social space where a kitchen is set up and people are invited to spend time with the artist. In this context, the food becomes a vehicle for social interaction. The limits of Tiravanija's work is also identified by Bishop as she questions "what types of relations are being produced for whom and why?"(65) She argues that Tiravanija's work creates situations where artists, dealers and other like-minded "insiders" come together to enjoy one another's company rather than to produce any kind of social or political transformation.

I believe Bishop's questions are fair and take them into consideration in the creation of my own dinner. From an ethological stance, bodies are always in relation and the emphasis is on sociability and communities. My dinner involves people from an art

and science context surely but also people like the chef who developed an interest in fungi only after his unfortunate encounter. In many ways this could be the same group of people that might partake of a museum exhibition on fungi. But where the museum exhibit is didactic in its form of expression and institutionalized in its mode of operating, the dinner offers the potential for dialogue on a more intimate scale. My concern is that relations are productive, that they open up to the flow of expression through the food and the diners in relation to one another. It is not as Claire Bishop suggests to produce consensus or even dissensus but rather to create the potential for emergence in all of its uncertainty. The dinner operates in a rhizomatic fashion never knowing where a line of flight will emerge.

Emergence

With my first experiment growing mould, I became rather enthralled with this organism, which I had always been told was repulsive and dangerous. I built a dark room especially for the creation of the dough cities and the documentation of their decomposition. I photographed the advancement of the mould with a macro lens. By bringing the photographs together in time-lapse sequences, I tried to synchronize the speed and motion of the mould with my ability to see, register and understand it. My curiosity about what I was observing was strong enough to inspire me to attempt mushroom cultivation, and further mould growth including slime mould.

Cellular slime moulds such as *Dictyostelium discoideum* challenge the very notion of an "organism." This mould, which is actually no longer classified as a mould or fungi, is comprised of individual cells, or amoeba, that feed on bacteria. These cells are dispersed throughout an area, and once the area is devoid of bacteria, the cells aggregate into a multicellular organism. This organism then moves towards an area where food is more readily available. Once it takes on the form of a fruiting body it becomes static. Spores are dispersed and the life cycle begins again (Bonner 8-10). The mould's power to exist as separate individual cells and then aggregate as a multicellular organism implodes typical notions of what a body is and its potential affects. The mould raises questions. How does each cell communicate with the other cells? How do they know when to aggregate? How does it move as an entire entity towards food in a strategic manner without a "head" or "brain"?

Slime mould aggregation was a problem that scientist Evelyn Fox Keller began to investigate, along with mathematician Lee Segal, in 1968. In an article called "Slime

Mould" she describes the paradox of sameness and difference exemplified in this organism and how its "rich ambivalence" sustained her interest throughout her career. Fox Keller and her colleague rejected the standard explanations provided for cell aggregation. Most of these explanations suggested that there must be "founder cells" that were somehow different from the other cells and therefore capable of initiating aggregation. Finding no evidence for this difference they developed a mathematical model showing it was possible for the cells to self-organize.

> We showed that clusters of amoeba would result from the collective dynamics of a population in which a change in external conditions (in this case, depletion of the bacteria that served as their food source) induced a change in state, and indeed, the same change in state, in each individual amoeba. Our account of the onset of differentiation in at least one kind of biological development offered a way to resolve the paradox (how does highly structured difference arise from similarity?) that so sharply divided genetics from embryology (Fox Keller 299-300).

Their findings were not of interest to biologists at the time because they did not fit within the paradigm of twentieth century biology. Since this initial model there has been much advancement in complexity theory with regards to evolutionary biology. Attention is being paid to concepts such as saltations, a term used to describe huge leaps in complexity that appear to come from networked interactions producing self-organization. These leaps could explain some of the dramatic changes that occur in evolution that are not as a result of mutation or inheritance.

Recently, microbiologist Carl Woese has posited that twentieth century biology is in the midst of a paradigm shift.

> Twentieth century biology was structured according to a linear Newtonian worldview. Linear thinking is not the kind of thinking that's needed to study evolution. It doesn't help you understand the nature of systems. Molecular biologists were so set about linearity that when the gene came along, they took the gene to be the be-all and end-all of basic biology. That comes out of thinking in terms of particles and linear interactions…I see evolution as the quintessential non-linear dynamics problem (qtd. in Keim).

For Woese, the emphasis should be placed on the dynamics of communities of cells rather than each individual cell. In so many ways this discussion of slime mould and the emergence of complexity resonates with ethology. From this perspective bodies are understood in relation so the emphasis is on the complexity of networked interactions rather than linear causality. The orientation of twentieth century biology offers a space of experimentation that is primarily about prediction and control through genetics whereas dynamic systems suggest something more akin to ethological experimentation, where there is only emergence.

It is emergence that fascinates. I identify strongly with Fox Keller when she describes how slime mould has been a "touchstone" throughout her varied multidisciplinary career. In this figuration, I am continually drawn in by the potential for emergence in this complex body that is both singular and plural.

One of the dominant questions that arises about slime moulds is how do these cells communicate with one another? In thinking with Deleuze and Guattari I would suggest that a communication-based model is inadequate to describe what is happening between these cells, rather, I would focus on expression. For Deleuze and Guattari expression is not "in a language-using mind, or in a speaking subject *vis à vis* its objects" (Massumi, Like a Thought xxi). Nor is it confined to an individual, an assemblage or an institution. According to Brian Massumi's interpretation, subjects, bodies, objects, institutions are the results of expression's movement. They are the conduits of expression: "Expression is always on the move, always engrossed in its own course, over-spilling individual experiences, nomadically evading responsibility. It is self-transporting, serially *across* experiences. 'There is a self-movement of expressive qualities' that momentarily crystallizes into actual objects and associated subject positions: 'expressive qualities are auto-objective'"(Massumi, Like a Thought xxi).

It is expression that moves from one cell to another and possibly on to a third. Expression is restless always sending out probe heads seeking where to move next much as the slime mould cells in their move towards bacteria. These probe heads moved on and through Keller in many ways throughout her career. A prime example is the moment in which her work on gender in the sciences brought her to revisit the dismissal of her early slime mould research. In this moment she was able to articulate the impact of gender bias in the way results were interpreted and understood. She was able to explicate how theories of domination with singular causal effects were favoured over more dynamic solutions (Fox Keller 301-302). This seminal research would act to deterritorialize the sciences.

For Deleuze and Guattari this deterritorialization and reterritorialization of the social field is a continual series of struggles.

> Another thousand tiny struggles. For re-articulation of this kind to eventuate, for anything new to arise in the social field, established forms of content and expression must give themselves. They shed functions, like so many seeds in search of new soil, or like branches for the grafting. It is of their cobbled-together nature to do so: to disseminate. And it is the constant nature of their sheddings to mutate as they disseminate (Massumi, Like a Thought xx).

The force of expression moved through Fox Keller in ways that were transformative of her discipline and ultimately the world. In this sense, I see Fox Keller operating with an ethics of emergence. For Deleuze and Guattari an ethics of emergence does not take a universalizing moral stance rather it articulates an ethical aesthetic stance that allies itself with change.

> It is a basically pragmatic question of how one *performatively* contributes to the stretch of expression in the world- or conversely prolongs its capture. This is fundamentally a creative problem...To tend the stretch of expression rather than trying to own it, is to enter the stream, contributing to its probings: this is co-creative, an aesthetic endeavor (Massumi, Like a Thought xxii).

In my own practice, I enter the stream and performatively contribute to the stretch of expression through the act of making. In sharing what I make and the activities involved

in the making, expression moves through me. These actions could be a singular expression or an atypical expression that will create a series to come. As Massumi writes,

> Deleuze and Guattari use the exemplary nature of singular expression to show that even the most ostensibly personal expression [such as a letter] may be directly political, in that it envelops a potential collective. For example, the subject of literary expression, to the extent that it is effectively creative, is not the individual author but a 'people to come' (Massumi, Like a Thought 27).

Ethics is in the co-creation of self. To enter the stream, to be open to the force of expression, to express, is to potentially transform. In this sense critical judgment is not about the product of the expression it is about its creative force, it's potential and how one contributes to that potential.

For many bio artists or ecological artists their work exists in the form of visualization. It exists somewhere between science-based imaging and performance art documentation. Artists such as Polona Tratnik, who works with the microbiology of the body, have found ways for people to encounter life forms rather than documentation. For her 2006 project *Microcosmos,* Tratnik set up a bathroom, including a toilet, sink and bathtub and contained the space under a large glass cube [Fig. 3]. She introduced the necessary conditions to grow and make visible microorganisms associated with the body. Another contemporary artist, Donna Franklin worked with biologists at SymbioticA to cultivate fungi on textiles [Fig. 4, 5]. These textiles were used to form a living dress also

exhibited under glass. Both of these artists are working with the generative forces of life in ways that draw people into relation with these forces.

My interest from an ethological perspective is to experiment with these potential relations. In other words, my intent is to bring bodies together in dynamic compositions. For this reason, I am working with architectural forms that draw people into composition with an organism that is formed through the symbiotic union between yeast and bacteria, known as kombucha. By bringing this organism together with a built form, I am attempting to "build the insensible." For Massumi, building the insensible involves creating mildly disorienting or even shocking affects in order to confound the senses. As Massumi suggests in relation to architecture, the built form is not a static end in itself, rather, it is a processual event:

> How can a built form build form?...Only by continuing the process of form emergence on a different level, in the register of the embodied experience of the people who use the building. In other words, by building into the architecture forces of perception that interact in ways designed to trigger experiential events (Digital Architecture 2).

I am cognizant of these forces of perception as I construct forms with a DIY aesthetic and semi-functional structure. These structures are more akin to the tinkering of the hobbyist than the modern master in their haphazard construction and open curiosity. They are actively uncertain.

In *Myco Research Station*, a box-like form at the top of my structure creates the dark space needed for the growth of kombucha. Inside the box, there is a multitude of kombucha growing in transparent glass vessels, feeding on tea and sugar. The yeast and

bacteria of kombucha come together to form a flat disk like shape that floats in the tea and will continue to grow to the size of the vessel. Small LED lights interspersed among the vessels illuminate this dark space. A mirror on the roof of the cube makes it possible for people to stand inside the structure and to look up into the cube through an opening. A mirror on the roof of the cube reflects the kombucha in such a way that it can be seen in each vessel.

People standing inside the structure interact with the kombucha through their vision. I say this recognizing that vision is never separate from the other senses. Seeing is also tactile so people see the kombucha with "fingery eyes." The mirror plays with forces of perception. Light and surfaces fluctuate between form and deform. Ultimately the form of the structure crystallizes from moment to moment through the generative forces of the kombucha and the dynamics of perceptual experience.

I believe this is significant in not only revealing the contingency of the world but also the contingency of human experience. As Massumi describes, "[i]n a word, experience is our virtual reality. It is something we have. It is a transformability that has us, and keeps on running with us no matter how hard we try to stand still and no matter how concretely we build. It is our continual variation. Our becoming. Our event: the lightning whose thunder we are" (Building the Insensible 17).

Conclusion

I can't help but join Fox Keller in thinking of fungi as a "touch point" in my creative practice. As a figuration or literal expression of that which the system declares off-limits, it has much to offer. By coming into composition with fungi initially through the practices of enlightenment, naturalists seeking the underlying principles of nature and later through the ethological practices inspired by Spinoza, I have entered the stream of expression. Fungi, as all bodies, are a point of emergence and by engaging in an ethics of emergence, I work towards positive change. Creative practice is but one of the thousand tiny struggles that can alter the social field.

I share with many contemporary ecological or bio artists a rather pragmatic desire to generate and sustain positive relations between bodies in a move towards community. To gather around matters of concern in an attempt to create new ways of making and being that can meet the complexity of current global issues. It is an approach that involves creative practice in an act of deterritorialization and reterritorialization of the boundaries between disciplines. It is also an act that recognizes the contingency of human experience and the present moment.

As a creative practitioner, I believe it is critical to counter the forces that reduce the complexity of relations in order to maintain human dominance. Human technological omnipotence bolstered by perpetual fear and anxiety about the potential unforeseen consequences is not productive. I agree with Braidotti's assessment that the recomposition of technoculture has never been more important than in the present moment. The courage to enter the stream and extend the stretch of expression, to

recognize that it could be otherwise is needed now. My practice embraces the generative forces of life, sociability and community in all of its uncertainty.

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Appendix

Fig. 1. Balthasar van der Ast, *Still life with Fruit and Flowers* (1620-1621), Courtesy of the Rijksmuseum, Amsterdam.

Fig. 2. Janet Cardiff and George Bures Miller, *Jena Walk (Memory Field)* (2006), Culture Department, City of Jena, Germany. Courtesy the artists and Galerie Barbara Weiss, Berlin.

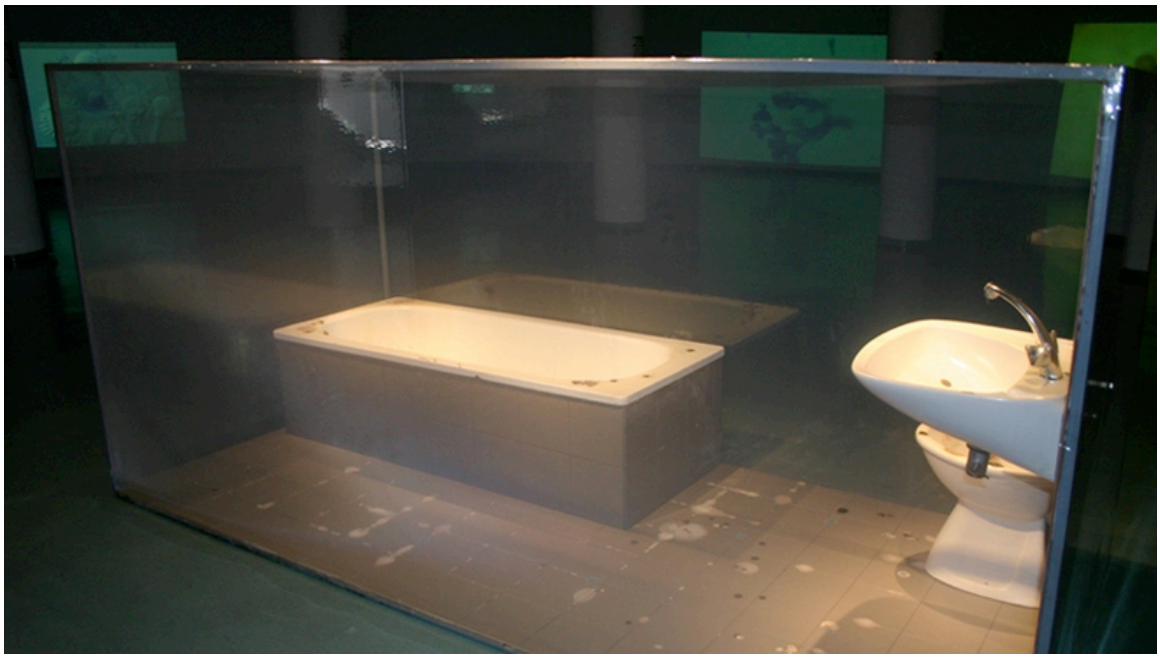

Fig. 3. Tratnik, Polona, *Microcosmos*, (2002) Mestna Galerija Nova Gorica (New City Gorica Gallery) City. Image courtesy of Polona Tratnik.

Fig 4,5. Donna Franklin, Fibre Reactive
Researched and developed at SymbioticA and exhibited at BioDifference Exhibition 2004. Image Photo: Robert Frith. Courtesy of Donna Franklin.