



Elaine Whittaker, *Shiver* (2015).

Living in a Porous World

Elaine Whittaker

Whilst microbial life is an essential component of life on earth, it is, none the less, a source of threat to human health. As porous bodies, we can be breached and infected – our body integrity challenged. Are we living in a time of heightened social anxiety around microbial life? In this interview, Elaine Whittaker explores the enormous power bioparanoia can have over us.

A core focus of your work is the constitution of healthy and threatened ecologies. Micro organisms not only pose a risk to human health but also play a key role in making healthy human life possible. How does the tension between these two forces play out in your work, especially in light of escalating social anxiety around microbial life?

The tension between microbes that keep us healthy and those that cause infection and disease is a source of immense intrigue to me. It is at the core of most of my current artwork: How can we connect an artistic aesthetic with the microbes that threaten our fragility as porous human bodies living with organisms that move easily across any boundaries. Ed Yong writes in *The Atlantic* that, ‘It’s also clear that they (microbes) play vital parts in our lives, calibrating our immune systems, digesting our food, protecting us from disease, influencing the effectiveness of our medicines, and perhaps even affecting our behaviour’ (1). Yet, even with all the necessary roles that

microbes play, they elicit a great paranoia in each of us individually and in popular culture in general. Even though we are individual, and social, living ecologies (a thriving community of organisms), our relationship with microorganisms remains strained. This strain is linked with unease and paranoia, constant companions that nourish a fascination with the power of the tiniest of life-forms to cause disruption – all themes at the heart of my art practice.

In his remarkable book ‘A Journal of the Plague Year’ (written in 1722), Daniel Defoe integrated historical records and his own personal experience to recount the ‘dreadful visitation’ of the bubonic plague as it swept across London in 1665. Such visitations of microbial plague are hardly a thing of the past: Leprosy, malaria, tuberculosis, the plague, and others, still haunt the world today. The acceleration of global climate change is facilitating new outbreaks of these older menaces, but also giving rise to the germination of new infectious diseases. As a consequence of two centuries of effluent emissions (in the form of carbon dioxide, methane, nitrous oxide, and other gases), climate change contributes to a massive increase in the quantities of hosts and vectors of pathogenic microbes. Seen through this lens and the [re]emergence of old and new infectious diseases, my artworks deliberately challenge the viewer to confront both their own personal, and wider societal, fragility amidst renewed microbial scourges: We live in a porous world, and in porous bodies; the possibility of being breached, infected, and losing body integrity is always present. Viewers are invited – even forced – to consider the cellular communities constantly transforming our bodies and our social ecologies. Microbes are not merely ‘visitors’ and we are not merely hosts; we are intertwined, symbiotic, and fragile together. My artworks explore the aesthetics of tension – of disaster – and of the unknown. After encountering them, viewers often leave slightly unsettled.

Far from trying to assuage a world threatened by infection, your work instead explores the interplay between terror and beauty, a moment when the scale of a threat transitions us from fear to an admiration of the grandeur of the threat. How does this 'aesthetics of disaster' play out in your work?

The possibility of contracting an infectious disease was palpable for everyone with the threat of SARS in 2003, Ebola in 2014 and 2015, and more recently with Zika and Lyme disease. The media, especially social media, highlighted certain aspects of these epidemics in a way that heightened peoples' fear. But the complexities of these infections seldom came across, nor the politics of the various countries involved, the economic structures in place that hinder transparency, and the cultural traditions of local groups that impact disease spread, and so on. Even if this knowledge had been available, the heightened public awareness – one of tension and dread – escalated forms of fear, and often also racism, that intimately associated these diseases with a fear of 'the other'. With the SARS threat, people started wearing masks on public transit, and coughing was looked upon with great suspicion. In North America, we also saw this type of behaviour with the Ebola threat, when intense screening at airports, borders, and hospitals came into common practice. I experienced this screening myself upon returning to Canada from abroad, and once again when I went to a local hospital for a hearing test (here, I was subject to answering a barrage of questions while standing behind a painted line on the floor before entering into the hospital). I realised this was an extraordinary time that begged for an artistic response. Interestingly, in developing that response – the installation 'Shiver' – I was able to alleviate my own personal fear responses. It is always a challenge to move past an initial fear to a more constructive and managed reaction.

'Shiver' is a multimedia artwork intended to steadily seduce the viewer to move away from a fear of the viral, of the microbial, and even from media scares of impending pandemics, and towards an appreciation of

the paradoxical beauty present in the microorganisms that live in, on, and around us. There are two central components to the installation, one sculptural and the other photographic. Though different in terms of media and material, they both present the possibility of seeing the unseen world of pathogenic microbes. The sculptural piece (also entitled 'Shiver') is a 'mutating organism' composed of pipette tips and over 2 300 petri dishes containing home-grown salt crystals; hung from the ceiling, it appears to erupt out of the confines of a petri dish. Some of the dishes also contain salted red wool strands shaped like the filamentous Ebola – described by Frederick A. Murphy, a virologist at CDC (the US's health protection agency), as a 'dark beauty – [a] horror' (2). 'Shiver' becomes both an object of grandeur and threat as white salt crystals radiate light and shimmer like a chandelier. This is especially effective when the work becomes 'alive', stirred into movement by viewers passing close by and causing air currents to move through it. The second part of the installation – 'Screened For' – consists of a series of photographs of myself wearing medical masks painted with an array of microbial infectious diseases, as found in microscopy illustrations in medical texts. With my eyes closed, or tentatively peering out, these enlarged life portraits are disconcerting and eerie, yet also purposely beautiful – tightly cropped photographs with inviting sky blue masks depicting large colourfully painted microbes.

Your practice has come to encompass a wide range of media, from home-grown crystalline forms to the Archaea 'Halobacterium'. In overlaying cultural imagery with living materials on the subject of infection in your work, you are able to generate a deeply layered engagement with your subject. How important (or necessary) is this interplay in your work?

Combining cultural imagery with live organisms has been essential to many of my artworks. The images I have selected from popular culture have

made the works richer material-wise and encourage a more complex and symbolic interpretation. The viewer is forced to make comparisons between memories and associations triggered by a cultural image and the 'live organisms' that obscure and scar that image. This technique is employed in my installation 'I Caught it at The Movies'. I believe most viewers think of themselves as impervious to the gravity of infections of the sort that run amok in pandemic movies. Even if they recognise that pandemics are always a possibility, the comforts of western capitalism seem to make it appear as something highly improbable. The viewer recognises that these are movies, that the people depicted in these films are only actors, and that there are no real victims or survivors of these 'infections'. They recognise that these outbreak narratives are popularised references transmitted through the medium of film. Oddly, they gaze at scientific depictions of bacteria and viruses with hypnotic admiration and terrified awe. This reaction is no different from staring at the countless visualisations of viruses and bacteria that grace the covers of magazines and journals: They too both attract and disgust us with their luscious colours and implied-potential for catastrophic effects.

In 'I Caught it at The Movies', there are hundreds of the petri dishes containing stills from a wide range of movies from diverse genres (such as disaster, science fiction, horror, etc .) overlaid with painted microscopic visualisations of infectious diseases, themselves enhanced by halobacteria. Episodes of confrontation take place that are culturally, historically, and scientifically charged by the imagery, and the viewer is forced into self-reflection about the nature of infectious diseases and their possible impacts and consequences. The intersecting motifs of cinematic and popular memories positioned as scientific objects inside petri dishes are constituted for close examination as if ready for the microscope, guiding the viewer into a world that collapses fiction and reality: What is real and what is manufactured? These probing, artistic engagements are meant to destabilise and unnerve the viewer, just as our own daily experiences in the world are becoming increasingly tenuous and disrupted.

Of all my works I have produced to date, it is this installation that has received the most public reaction. People identify with the disaster movies I have selected, so, without even the need to show gruesome details, they were compelled to get as close as possible to the bacteria-laden dishes to identify which movies or celebrities I had inserted into them. In some cases, audiences even made a game of linking the movie with the outbreak – rabies in this one, plague in that one, and so on. Through this more intimate encounter, many expressed their surprise at finding the colour and crystallisations of the bacteria in the works (and the agar on which they were grown) as quite beautiful. This created the opportunity for further discussion about the social anxiety and terror associated with microbes. On further reflection, it also forced the viewer to consider the unavoidable role of bacteria in our lives, and that we cannot possibly insulate ourselves from our natural ecology. The installation effectively transforms Hollywood ‘shock and disease’ movies into a radical aesthetic gesture of quite a different meaning.

In one understanding of media, your work opens a dialogue with your audience, engaging with issues around fear and infection or the grandeur and fragility of the human body. The use of halobacteria, however, introduces a perceived, real-time threat of infection into this conceptual space. Beyond conversation and reflection, how do your audiences react to the living material you present?

The cultured bacteria in my artworks generate viewer reactions in almost every way you can imagine – from intense interest and a need for closer inspection, to astonishment, surprise, trepidation, and even dread and fear. For some, it was a ‘wow’ moment, drawing them to lean in closer for a more intimate visual experience. For others, it was unsettling just being in the gallery with the bacteria: They were visibly uncomfortable, asking

for assurance that everything was safely contained while keeping their distance, not venturing too close to the works. And then there are always a handful of viewers who are repelled: They would start by reading the artist statement, and, as revulsion and fear spreads across their face, they would scurry out the door before even looking at the works. I must say that all these reactions are the kinds of engagement I expect – I even get it from friends visiting my studio. Confronting the social conditioning around bacteria is one of the functions that has to come from ‘new art’ revealing the unknown through an aesthetic practice. For others, it opens an entirely new way of thinking about social and political issues today – and that is even more satisfying. The varied reactions of viewers could be looked on as an interesting gauge of our times. Is their fear even greater now because we are more aware of infectious diseases and how they spread? Sensationalised news reaches us with even greater speed, even though it might not always be factually true. It is hard to say how this impacts the dialogue between the art and the viewer. But because these minute life-forms are so closely associated with fear, the use of any bacteria in my artworks, even if it is non-pathogenic, is anxiety-inducing.

Brian Massumi has discussed how infections acquire real status not through an effective occurrence but through anticipation: ‘The resulting fear becomes rather pervasive, since it is a reaction to a ‘quasi-cause’ that hasn’t manifested yet, but might (or might not) occur at some point in time’ (3). That anticipation is subject to an always-incomplete picture of scientific, social, historical, and personalised knowledge. Is this where the richest exploration of fear lies?

There is something very real in what Mike Davis referred to as an ‘ecology of fear’ that extends from policy and surveillance to the bio-panics created by public health warnings. We are intertwined in this ecology of fear, in the

ways we live now, even if the different components of that ecology have distinct causes and suitable responses to them. Thinking back to the disaster movies, filmgoers might leave a cinema either buoyed by characters who have survived against all odds or burdened with a simple dread because the threat of infection ‘remains imminent’. In a gallery space, in comparison, visual art can offer something more than a simple narrative encounter with these issues. I try to create the anticipation of an unpredictable threat in my works as a kind of tension – installations that are beautiful and enticing, but also unsettling to the viewer as they enter a world of bacteria, mosquitoes, and disease. This individualised ecology of fear is confronted right in the gallery: It is an acute reaction (fear playing out biochemically in sweating, increased heart rate, etc .) coupled with individualised contagion anxiety. I present these artworks not to explain a general social ecology of fear but to reveal some of the tensions that exist between the beauty of microorganisms and the ever-present fear of their hidden danger.

In this sense, raising awareness on the issues of disease risk and its management is not the main intention of my work: I do not purposely make work to be didactic. My artworks are, however, scientifically, socially, and historically oriented. A fortuitous consequence of this is that they are able to generate discussion and debate about such things as disease awareness. Often, my works are based upon extensive research in medical and scientific documents or on events from history. It is, therefore, appropriate that they are exhibited in science centres, in science –art galleries, and even at medical conferences. Such venues are not primarily art spaces, but they do foster in viewers an expansive interpretation of the ideas and concepts I explore in my work (turning them, although unintentionally, into educational discussion points for visitors, particularly children). The works also force more reflective moments for scientists and medical practitioners, sometimes taking them onto unexpected trains of thought. Even in more typical art settings, the engagement of viewers with my work does not centre on ‘the facts’ behind infectious diseases or on how to manage the

threat of disease but, rather, drives an aesthetic impact that may trigger discussion or provoke something more unsettling.

Many artists who work with living media today had beginnings in science education or research (or a combination of both). What was your own entry into this field and how do you see it developing as your engagement with it diversifies?

I do not have a formal science education. Instead, my early artistic practice began with photography and sculptural ceramics and overlapped with social activism in the ecological movement and around feminist health issues. I formalised my education in art much later but continued to be involved in social justice issues, meanwhile pursuing an art practice that included untraditional materials such as wax, insect bodies, and salt. The driver for incorporating organic materials into my art comes from a fascination with the corporeal ecology of the body, with medicine, and the natural environment we are embedded in. I started portraying these notions first through salt: by working with salt, a mineral, I was able to mimic the organic, growing and nurturing diaphanous crystals on created and found objects. Many viewers perceived these crystals as organic because they were grown, but they are, in fact, lithic, geological, and inorganic – a mineral, not a cell. I was also drawn to salt because it is the foundation for life, a link from our primordial past in a briny ocean to our foetal beginnings in the salty milk of amniotic fluid. It is also the most common inorganic substance in the human body. Trespassing the boundaries between organic and inorganic (and between the microscopic and macroscopic) salt became both my main material and metaphor in my early artworks. Alongside salt, other materials such as wax, bone, mosquitoes, and plant organics became an integral part of my material repertoire.

It was when I was researching the history of pandemics, early microbial life on earth, and the rise of infectious disease under the ecological pressures

of global warming that I was moved to incorporate live bacteria into my artwork. When I learned that there was a non-pathogenic salt bacteria that could be easily obtained from a biological-supply company and cultured in my studio, I realised I had found the metaphorical and material stand-in for the infectious diseases I was studying. Having live organisms in my work coupled with cultural and political indicators made for a fuller, enlivened, and challenging experience for the viewer. What often begins as just another afternoon at the art gallery soon dissolves into a very different confrontation with artworks that become disconcerting ideas about our personal and social ecologies.

The cooperation between professional research scientists and artistic practitioners is becoming more established as a means of creating innovative work or exploring the porous boundaries emerging between traditional disciplines. Do you feel artists could, or should, have a place in the research lab of the future?

It is true – and still surprising to me – that more traditional scientific laboratories now support (and even fund) artists to become collaborators. The idea of what constitutes a lab is, at the same time, becoming incredibly complex in terms of its engagement with interdisciplinary thinking. Artists and scientists are being brought together under novel ‘umbrella’ structures – such as science galleries, science centres, ecological organisations, and specialist institutions in astronomy, particle physics, nanotechnology, biotechnology, and more. I have had the opportunity to exhibit in a number of these impressive venues and have also worked with boundary-bending scientists on projects exploring, for example, dance and biology, toxicology, tissue engineering, and augmented biology. These quite surprising collaborations are likely to continue evolving in unexpected ways in science laboratories. This may, indeed, be driven by the tremendous – even frightening – fragility of our current political and ecological systems.

Paradoxically, the worse things get, the more there is for art-making to reflect upon.

Perhaps with the expansion of living media practices, we can start pointing towards alternative futures than those that seem likely at present? That might be far off though; artists working with living materials still face a number of challenges in getting their work seen by the public. This is not surprising, given the very limited art market for such work. The transitory nature of these pieces and the expensive upkeep of live organisms make it even more challenging for individuals and institutions to display work. Funding for our art is slowly getting better, but the fact is that many jurying members of funding organisations either do not understand the science or our aesthetic sensibilities. Even transporting biological artworks across borders can be difficult as security concerns can hold up or even embargo the work indefinitely – as recently happened to me. So, supportive organisations that bring together artists and scientists (like the ArtSci Salon in Toronto and the SciArt Center in NYC) are crucial for artists, like myself, to aesthetically respond to future contagions. Who would have thought over two decades ago artists would be making artworks with microorganisms?

Working with living materials depends on tools that have, in their time, revolutionised Science and become mainstays of scientific practice. Are the techniques you use stabilising, or is this still a ripe period for invention and advancement in the arts?

This is an area of great inventiveness within arts practice, in part thanks to a wealth of cross-fertilisations between scientific work and artistic activities. For example, new techniques and processes in the lab are being developed and kept evolving (such as CRISPR – a process that helps make specific changes to DNA in plants, animals, and humans; a technique now being taken up by artists). New biotechnologies are also being taken up by bio-hackers in the DIYbio movement to transform living forms, including their

own bodies. The consequences of this intersection between science and art-making are often a significant transformation of traditional approaches in painting, sculpture, and drawing. There are whole new ways in which the boundaries of art are being redefined today. As Artist-in-Residence at the Pelling Laboratory for Augmented Biology in Ottawa, my own work is taking an unexpected path as I learn about the process of decellularisation in living and vegetable matter. The Pelling Lab is known for carving an ear out of an apple and culturing it with mammalian cells. By removing from apple cells and DNA, only the cellulose scaffold (that gives the apple its structure) is left. This artificial scaffold can be reshaped and implanted with stem cells to potentially grow replacement organs and tissues (such as ears). I have been collaborating with them to use this technique for a new art piece – a decellularised maple leaf cultured with human lung cells. Whilst the lab focuses on the possible future application of this approach in the medical field, my piece (for an upcoming exhibition) is much more speculative. It was envisioned as a metaphor for trees: as lungs of the earth given even greater – even fantastical – potential by harbouring and combining with human lung power. My own practice is being enhanced through exposure to the expertise and experimental processes of laboratory work. Nonetheless, being innovative in my own right as an artist is a central driver for the creation of new work.

References

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Author Biography

Elaine Whittaker is a Canadian multidisciplinary artist working at the intersection of art, medicine, ecology, and biological science. Her art practice principally focuses on the creation of installations, which include sculpture, drawing, painting, and digital imagery elements. Her work has been exhibited in galleries and museums both nationally and internationally, including in Canada, Mexico, France, Italy, the UK, Ireland, China, South Korea, Australia, and the US. Her work has also been featured in digital galleries, literary, medical, and art publications (such as William Myers's book 'Bio Art: Altered Realities' (2015)). In 2018, Elaine was Artist-in-Residence at the Ontario Science Centre and is currently Artist-in-Residence with the Pelling Laboratory for Augmented Biology (University of Ottawa). More on her work can be found at <https://www.elainewhittaker.ca/>.