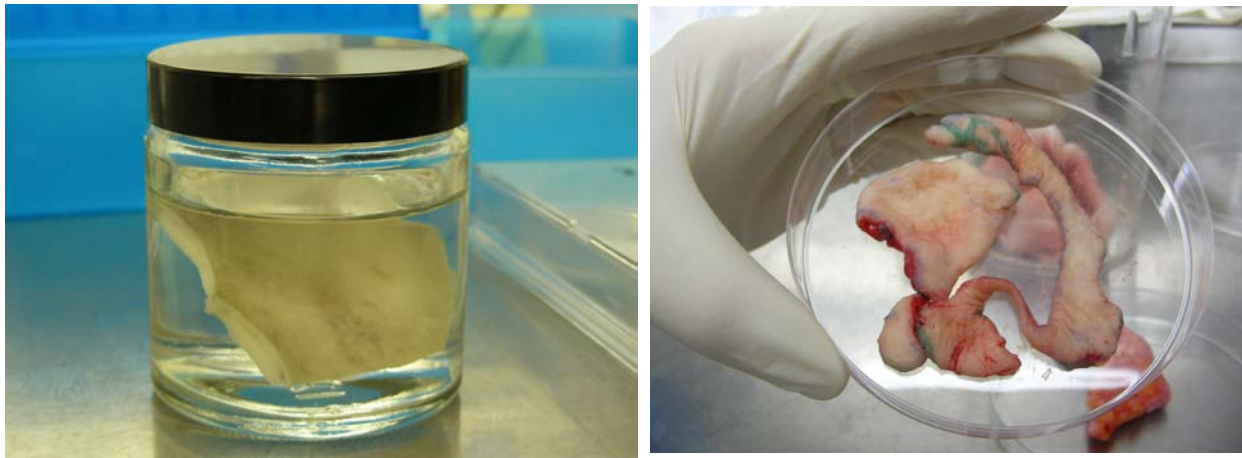


LIVING VIRAL TATTOOS? CRISIS ALERT!¹

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Left: *Transfection on human explant tissue: work in progress towards the making of Living Viral Tattoos,*
 Right: *Living Viral Tattoos.* Materials: Human and pig skin, Lentivirus and HaCat cells.
 Image Credits: Maria Grade Godinho and Tagny Duff.

When we humans walk in a city, run through the halls of a busy airport, roll through a bus terminal or a train station, we are traveling through not only streets, hallways and stairs, but through microbes. Viruses, bacteria, yeast float in air, in walls, in moving human bodies. We move these microbes, just as they move us. The limitations of barriers and borders are not clear, if they exist at all. We move with an interkingdom of unnatural participations.²

Unnatural participations occur when nature acts against itself. Epidemics, contagious diseases, strange

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² I am borrowing from the terms explored in Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* trans. Brian Massumi (Minneapolis: Minnesota UP, 1987). "Unnatural participations or nuptials are the true Nature spanning kingdoms of nature. Propagation by epidemic, by contagion, has nothing to do with filiation by heredity, even if the two themes intermingle and require each other" (241).

couplings and anomalous events modify assemblages. The unnatural creates movement disturbing the order of things, classification systems and the equilibrium of filiation. Such movement roams through instability, the "what will have been."³

Humans exist in a precarious relationship with the microscopic interkingdom. We try to defend our bodies against attack from unnatural co-minglings. We try to maintain an equilibrium. Germs are "disinfected." Aseptic technique destroys all potential contaminants. Humans constrict border passages to control the flow of bodies, successfully or unsuccessfully controlling the growth of microbial populations to maintain the equilibrium of the human population. This creates new forms and conditions such as "super bugs," new strains of infectious diseases, all contributing to the conditions of far-from equilibrium: crisis.

Crisis is an unstable status, a phase change, a turning point, a moment of change where the outcome is unknown, but perceived to have negative consequences. Crisis signals a major shift, both productive as growth and potentially destructive. In many ways, what humans perceive of as crisis, such as pandemic, may be productive of evolutionary growth of bacteria and microbial entities. The growth of bacteria may be catastrophic for the human population but is also a continuation of genetic modification of life forms on the planet, a process that has been ongoing for four billion years.

Crisis and Unnatural Participations

The crisis of humanity is articulated in multiple narratives of catastrophe. One such narrative reoccurring in the 20th and 21st century is the story of alien invasion or the takeover of human life by robots and other cybernetic creatures of war. The fantasy of humans battling it out with machines only to end in catastrophic tragedy for the human race is still with us, but it is shifting. Popular films such as *The Terminator/Robocop* (1994), *Invasion of the Body Snatchers* (1959, 1993), *Metropolis* (1927) illustrate such narratives. The recent popular American television series *Battlestar Galactica* (2003-2009) reflects a change in attitude towards cyborg clones and machines. Relationships between humans and the cyborg clones (the Cylons), while fraught with antagonism, war and violence, are also implicated within complex and ambiguous moments of allegiance and love.

As humans gain more confidence and mastery with digital and electronic networks and gadgets, the idea of human-machine interminglings becomes more acceptable. The human is more at ease with electronic and digital vibrations, voices and faces that we now hold in our hands, our heads and our flesh, bones and blood with everything from iPods, PDAs, laptops, pacemakers, etc. The augmentation and merger between human and machine is no longer a serious threat, no longer a crisis.

The crisis has shifted to the unseen; the undead virus that moves through air, cellular matrix, unprotected data, and unprotected flesh. It is in the hidden cell of a terrorist network; the bacteria that mutates and exceeds the capacities of antibiotics; and the yeast that proliferates in the gut. The human, just as other animals, plants and microbes, is faced with the reality of sharing bodies; loose, wet and amorphous cells moving within the world. Given the openness of bodies to exchange materials, forces and relations, the affect of unnatural participations—so necessary to the ongoing movements and evolution of bodies—is for the most part, unknown. It is the unknown, these unseen co-minglings through the holes in bodies that generate both fascination and fear.

In 1890 Robert Koch published the four postulates establishing a method for evaluating causal relations

³ By this I mean the potentiality and indeterminability of events.

between microbes and diseases. As a result a new technique isolating humans from microscopic pathogens was applied. Koch's postulates proved the scientific validity of Germ Theory, establishing the currently held belief that microorganisms cause disease. Aseptic technique developed in the mid 20th century is now routinely used to kill unseen microbes and prevent infection. Such a practice attempts to prevent the crisis of fever, illness and death.

Insecurity around human capability to control the microcosm is the current preoccupation of global crisis. Viruses, more than other infectious microbes, are at the forefront of the crisis: be that of the so-called global economic crisis or the H1N1 pandemic.⁴ Both crises, not coincidentally occurring simultaneously, reflect the deeply intertwined relation between bodily health and global economic health. Faster computer processing and newly developed bioinformatic technologies are applied to control and monitor the flow of bodies. Aseptic technique is replaced by thermal scanners at airports, CCTV systems, and GPS tracking devices. The increasing focus on prevention of pandemic and economic health preemptively assumes crisis and catastrophe. This generates a call for action and mobilization. Borders are strengthened, quarantine is enforced, and currency fluctuates. The expectation of the invasion of viruses and virulent microbes looms,⁵ just as Y2K generated a hysterical expectation of the impending disaster of a global computer meltdown.

Viruses: the Unnatural Shapeshifters

The ability of viruses to wreak havoc in genomic structures, computer algorithms and health is on the forefront of global media news. They are shapeshifters in the sense that viruses move and create change through contagion. In the life sciences, viruses are not classified as lifeforms until they infect a host cell. There is much debate about the vitality of RNA and DNA strands, the molecular structure of viruses, as scientists now frequently construct synthetic viruses in the lab and use them to deliver genes to specific parts of cellular "targets." Viruses remind us that there is something more than the "code" of life based on the presupposition that life operates similarly to a computational algorithm, without falling into vitalist position that privileges cellular life above all else.

Synthetic biological viruses are, in fact, exemplary of living entities that challenge assumptions of life and liveness, provoking a reconsideration of the interrelation between digital and biological life and biodigital media. As Eugene Thacker argues, bioinformatics, the convergence of digital, biological and computational media, now exceeds the analog-digital divide.⁶ The division between biological life and computational algorithms is not so clear with the proliferation of ubiquitous wireless networking and supercomputing. For example, synthetic viruses are custom-designed in DNA sequencing databases with computer software such as BLAST. The sequencing forms the recipe for recombining DNA plasmids. These plasmids are inserted into living cells and tissue, becoming "wet"-ware for gene therapy and other aspects of experimental laboratory and medical science. These viruses transgress the division between organic and artificial, living and dead, provoking questions around current cultural and symbolic

⁴ In January 2010, the parliamentary assembly of the Council of Europe, made up of 47 countries that work to protect human rights, are holding a conference titled: Faked Pandemics: a threat to health. This debate considers the role of pharmaceutical companies and WHO officials in overstating the threat of H1N1.

⁵ The WHO has likened the H1N1 viral epidemic to the Spanish influenza epidemic of 1918.

⁶ Eugene Thacker, *The Global Genome: Biotechnology, Politics and Culture* (Cambridge: MIT Press, 2005).

associations with the viral and technology.⁷

Viruses are the remixers of human genetic variation, they are the creators of the human cellular mashup well before Web 2.0 emerged with such an ideal. They take from various cellular matrices and remix them. They transverse species under the appropriate circumstances. (They know no copyright or ownership of genes). Scientists estimate that up to eighty percent of the unknown human genome called junk DNA are viral entities that are not as of yet, understood and classified. In other words, viruses have as huge a role to play in the growth and development of life (and bodies) as they do in altering genetic material aiding in its destruction. They interact with circumstances and environments, responding to, as they generate forces of movement. Viruses have been remixing genes for billions of years with the collaboration of environmental forces, the impersonal growth of the planet and universe.

Microbes and synthetic cloned entities and chimeras co-mingle in bodies and the environment, as they do in laboratory science and the representation in visual media and popular culture. They are part of the technological assemblage.

As artists begin to apply knowledge and technology from the life sciences and microbiology, it is necessary to confront the fear of crisis and catastrophe currently circulating around the artistic presentation of unnatural participations, as it is in the global hype around viral pandemics.

The Artist Working with the Public Display of Unnatural Participations

The artist who works with life and art, biomedica or biological material cannot avoid engaging in this perception of crisis and disaster at this moment in time. The paranoia and fear around biological media is often mistakenly associated with bioterrorism.⁸ The assumption that such biological materials are biohazardous, dangerous and difficult to handle can supercede the realities of public health and environmental risks. Ultimately, the concern for public safety and media controversy over the public display of such "unnatural participations" between lifeforms and materials, such as transgenic, synthetic, clones entities, may prevent the public display of such work, even if there is no such actual threat. The following case study explores such a situation.

Living Viral Tattoos

For the last three years I have worked with biological synthetic virus and human tissue as artistic material towards the production of various performances, videos, sculptures and installations. *Living Viral Tattoos* (2008) is a sculptural project that has raised many concerns around the nature of biological material and public safety as discussed previously in this text.

Living Viral Tattoos is a series of sculptures made of human and pig skin and biological synthetic virus. The sculptures were made *in vitro* in a science laboratory. The synthetic virus called Lentivirus, a derivative of HIV strain 1, was placed on donated human skin (waste tissue from surgery) so that transfection and

⁷ This does not suggest that viruses transcend such division. Viral movement is situational and implicated by the environmental specificity of its host.

⁸ The tendency to associate bioart with bioterrorism is discussed in "Bioparanoia and the Culture of Control," from Beatriz Da Costa and Kavita Phillips, eds., *Tactical Biopolitics: Art, Activism and Technoscience* (Cambridge: MIT Press, 2008) 413-428.

contagion would occur at the cellular level. They were living sculptures for the duration of approximately five hours, before they were fixed (killed). Once the cells were no longer alive, a staining process was conducted to visualize antibody reactions to antigens created by cellular bonds. The areas on the skin that were transfected by the viral host cells then appeared bluish/brown. This scientific process was intentionally appropriated to visualize viral tattoos in the form of bruises. Once the visualization of color was completed, the sculptures were placed in jars of paraformaldehyde for a year and then moved into PBS.⁹ The virus, cells and tissue are inert now and the biomaterial reveals areas of bluish brownish stains.

Theoretically speaking, the work is no longer living as a biological entity, as the tissue no longer has a metabolism. The sculptures pose no health risk. The metabolically inert material cannot replicate or infect. It is more sterile and less dangerous than a human cough. The sculptures are easily displayed on a shelf in a gallery, on the desktop in my office, in the display case of a science centre.

Yet, it is technically possible to consider these biologically dead cells and viruses *undead*. For example, we could take RNA or DNA samples from the tissue, find the structural pattern, and replicate the viral clone with recombinant DNA at a later point in time. The symbolic associations humans attach to preserved flesh also contributes to a suspended notion of liveness: a suspended mode of phase change that can be revitalized at a later time either through the image, the genetic or biological structural form.

The work speaks to the unnatural participations applied in biotechnology; particularly in tissue culture engineering of viruses, mammalian, plant and microbial bodies. Such co-minglings are productive of a continuing relation of movement across species, shifting the stability of temporal and spatial horizons. The couplings in this work are multiple: cross filiations not usually experienced in the material manifestation of art. Pig, human, HIV virus, cell lines, artist, scientist, plastic surgeon, art gallery, media festival, science laboratory, computer algorithms, biotech companies intermingle in unexpected assemblages that counteract filiation of genre, species and logic. A living viral tattoo? Not possible. Yet manifested. This strangeness triggers deeply held societal fears around the potential for these technologies to contribute to both regeneration of the body and extend its current lifespan and/or to create a catastrophic accident.

The Exhibition of Living Viral Tattoos as Crisis

In many cases, art works crossing into the threshold of the unnatural are prevented from entering the arena of reflection and discourse for fear of crisis. This is explored in the following situation that arose around the presentation and eventual cancellation of an art installation of *Living Viral Tattoos*. This work was selected by a jury for the International Symposium for Electronic Art (ISEA) in 2009 under the Posthumanism stream. After receiving a notice of this acceptance and proceeding with the necessary precautionary protocols for shipping and displaying the work, I was told that the work could not be exhibited. In an attempt to prevent an accident or public reaction around the work, the exhibition of *Living Viral Tattoos* was cancelled by the Ormeau Baths gallery in Belfast, and later by the organizers of the festival. This cancellation ironically made the work exemplary of the panel description of posthumanism, which is: “manifested through a range of biopolitical events, along with an aesthetic staging of bioethical encounters [that] ruptures the polarized views of bioconservatism and technoproggressivism, provoking a

⁹ Phosphate buffered saline (PBS): a water based salt solution used in biological research (such as tissue culture engineering) to dilute and rinse cells.

series of conflicts that demand multi-layered conceptual apparatus to unravel.”¹⁰

The cancellation of the *Living Viral Tattoos* illuminated the fluctuating views of bioconservatism seen in the reaction to the material manifestation of unnatural participations of viruses, human tissue and cells. It also reveals how technoprogressive ideologies that in theory support the exhibition of biosynthetic materials may be inadequate for practical matters such as providing necessary resources for exhibiting biological art works. In other words the rhetoric of the event supported theorizing the posthuman, while the concrete application of these questions—the use of biological material—is currently not supported. This concrete lack of support may be due to lack of resources, skills and interest necessary to accommodate such biological materials within an artistic context.

The details of the work's cancellation are noteworthy in that they exemplify the current state of such lack of resources and at times, irrational concern for public safety. Such reflections upon the process and details are useful and productive. The intention here is to consider how the cancellation of the work may be used as a case study for assisting in the exhibition of biological works in the future, and to contemplate some issues specific to biomateriality and bioflow in art today. This reflection acknowledges and recognizes the difficulties and tremendous personal efforts of the organizers to address these issues and concerns.

The main reason given for the cancellation of the work was the concern of introducing biohazardous materials into the gallery. Originally the sculptures were in low volumes of paraformaldehyde, which is a chemical substance classified as biohazardous, although it is frequently used for display of specimens in science museums. However, the organizers were notified on two separate occasions that the sculptures had been moved to phosphate buffered saline (a non-toxic solution) for the exhibition context, removing any kind of biohazardous material or substance. What resulted was a confusion about the meaning of biohazard as it is applied to biomedicine and its display in an artistic context.

At the time the first cases of H1N1 had appeared in Northern Ireland and the UK, adding to the climate of uncertainty. The focus on transmission of contagion found in public service announcements, airport signage, and border crossing at the time added to the anxiety around biohazardous materials.¹¹ As Critical Art Ensemble wrote recently, “hyperstimulating the imaginary of individuals with fears of a loss of bodily integrity is one of capital’s most common energizing spectacles.”¹² Biohazard becomes synonymous with bioparanoia where all forms of biomaterial are suspect for transmitting dangerous substances, even when no reasonable threat exists.

The first sign of concern around the issue of biohazard occurred a month before the exhibition, when the board of the Ormeau Baths Gallery informed the festival organizers that the work would not be exhibited. I was told it was on the grounds of safety and insurance issues. When I offered to provide more information regarding the safety of the work, I was told not to contact the gallery.

To the credit of the ISEA organizers, they attempted to re-situate the work at the University of Ulster.

¹⁰ Quote is taken from the ISEA website, accessed September 2009, "ISEA: Inter-Society for the Electronic Arts," <http://www.isea-web.org/eng/index.html>.

¹¹ One of the organizers mentioned that it was important that we be culturally sensitive towards the Irish and the devastation of the mad cow disease (Bovine spongiform encephalopathy) on the agriculture industry. The wish to minimize the potential for accident, in this case an accident not possible to occur given the material and context, is expressed in such a concern.

¹² Critical Art Ensemble, "Bioparanoia and the Culture of Control," from Beatriz Da Costa and Kavita Philips, eds., *Tactical Biopolitics: Art, Activism and Technoscience* (Cambridge: MIT Press, 2008) 413-428.

However, this was not to be. The most glaring issue arose when the university researchers, having spoken to the UK Human Tissue Authority, were told that they needed a license to show the work which would take months to obtain. I immediately responded by telling the organizers that there was a mistake. The Human Tissue Act (covering the UK and Northern Ireland) states that licenses to publicly display human tissue are required for materials obtained from deceased human bodies only. The *Living Viral Tattoos* sculptures contain skin donated consensually from a living human donor with the expressed understanding that it would be used in an exhibition context. Therefore, the sculptures do not require a license under UK law. This was later confirmed by the tissue license officer.¹³ Despite all this, with an invitation to show the work, the shipping arrangements confirmed, and a plane ticket about to be purchased, my participation in the show was cancelled.

The artist, scientist, and/or amateur enthusiast working with biomedicine becomes the focus of debate, and responsible for all risk analysis. In this particular case, most of the preparation for the exhibition involved obtaining forms to legitimate the production and display of the work. Like other scientists and researchers, in order to make the work, I also had to pursue multiple streams of official ethical approval before the work could begin.¹⁴ No matter how many ethics approvals, discussions and explications about the nature of the work; the focus returns to concern for safety. Will the audience be physically and emotionally safe? Will the donor of the tissue be protected? In a crisis-prone society, worst-case scenarios are the norm and every possible preparation to prevent accidents is in place. The reality is that despite the best of intentions and most thorough of preparations, the artist can insure and foresee only so much in relation to basic safety. For gallery directors, organizers, artists, administrators etc., to assume the entire responsibility for the safety of public audiences may censor the public's right to encounter the work. Is the audience not also partially responsible for their own participation and conduct within the exchange of ideas? The art world is not immune to the increasing scrutiny and surveillance of global bioflow, particularly because it is embedded within government, industry and private funding policies and economic agendas. As such, the art world (and those of us included in its orbit) wittingly and unwittingly enact preemptive security measures.

Towards Visions of Unnatural Participations

Despite the growing prevalence and striation of regulations upon bioflow across national borders, international travel routes and artistic venues, there is also an increased mobility across various strata. Humans with access to internet and telecommunications technology communicate through digital networks with greater ease than ever before. Bioflow navigates through the unnatural participation of biological and digital bodies. Such movement creates new configurations of shape, temperature, materials, speed, and scale often exceeding the striation of biocontrol.

The movement that occurs in the excess of biocontrol can be perceived as a worlding of human-animals, microorganisms and viruses where contagion is not crisis, not disaster; but desired, valued as a mode of intermingling. We do not have to look very far to see such worldings.

Transgenic, chimeric couplings can be seen in the paintings of Hieronymus Bosch. His paintings of

¹³ A member of the jury committee contacted the Human Tissue Authority to inquire about the issue and was given the contradictory information.

¹⁴ The project received ethical approval from Human Ethics and Biosafety committees from both Concordia University and University of Western Australia. The process took approximately six months between submitting the applications and receiving approval to begin working on the project.

sexual and ecstatic unions across species are rendered mere years after the dark moments of the Black Plague (the Bubonic Plague). These works remind humans of the interconnection with forces of life beyond the human. Impure. Unholy unions. Fantastic and brutal. Within such interminglings contagion is a crisis that is lived and experienced. Although Bosch painted scenes to depict the evil perils of carnal desires such renderings reveal the worship of the haecceity of unnatural participations. These forces are embodied in the merger of non-human entities with the human-animal, chimeric beasts, and uncanny scales of bodies.

When poet William Burroughs spoke about the word as a virus, he meant that ideas produce strange couplings that break the stability of established ground. The past moves through the future. What has been written and thought can be contaminated, made impure and contagious. For Burroughs, this contagion is necessary in order to recreate what is known to the unknown. From this point of view the word is transgenic. It has shapeshifted through space-time across the page, through breath of mouths living and undead, in strange soundings that are no longer recognizable.

When performance artist Kira O'Reilly takes the corpse of a pig,¹⁵ climbs inside it, strokes it, or sleeps with a living pig next to her naked body, she is creating an unnatural participation that can only be understood as caring for viruses, cells, blood and everything that is the pig. Becoming pig is embodied as a high form of unnatural participation.

When I grow and mix Lentivirus, RFP, with HaCat cells, human breast tissue, pig skin purchased from the butcher, I am willingly existing within an unnatural participation across species, organic, synthetic, living and undead entities. This is a frightening activity. This remixing of bodies implicates my own body as part of a technological assemblage that is not objective, contained or controlled. This is the hidden underbelly of science. Unnatural participations are the unspoken norm.

These strange materials and articulations that I find myself growing in an incubator, a sterile hood and an artistic context is the amplification of technological assemblages. The landscape of these co-minglings requires a shift in point of view. This is a necessary leap if the new assemblages of bodies across biodigital networks are to be thought, experienced and generated.

Imagine this scenario as a durational performance occurring across microscopic ecologies:

Cells mate with bacteria and swim through the blood of pig and human. Colonies of bacteria proliferate and overtake the cells causing an explosive break and spill. Toxic waste streams through plasma while synthetic antibodies push down quickly through a metallic tunnel. X-rays illuminate the shape of bones creating pathways for migrating viral host cells. Buds multiply on the circumference of the porous surface of a cell and release. They float and attach themselves on the next cell, and insert a portion of their surface. They start to slow down. The temperature cools until they are frozen. The cells slowly move again. New cells circulate around them. The bacteria is gone. The plasma is cleaner, less cellular waste floods the channels. Human muscle cells collect with, pig, bird, and rabbit antibodies. The cells hold a gene from a firefly, chemical particles from battery acid, and mitochondria busily eating away at cellular debris.

This performance is occurring and will have occurred in most laboratories in universities, biotech companies, in some cases, the amateur scientist's basement. It will have been occurring in the

¹⁵ From the performance *Inthewrongplaceness* by Kira O'Reilly (2005).

environment of the human-pig body across larger spans of time than accounted for in human history. Contagion moves these unnatural participations. Such movements are impersonal. This does not insinuate that, as humans, we cannot be moved by fear and crisis of contagion. From a certain point of view crisis is a reflection of necessary and desired phase change for health and evolution. From another, it is a human experience of illness, death, and poverty. All of these points of view are conjoined. The point here is to acknowledge the place of contagion and the viral as a rich intermingling of potential. It is also to acknowledge the tendency, at this juncture in time, to emphasize catastrophe and impending crisis for the human-animal and its technological assemblage with machines and microbes.