

INTERFACING LIFE: THE POSTHUMANISM OF BIOART

By

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To my loving family and my good friend and mentor, Blake Hobby

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This thesis intervenes in the ongoing discussion of posthumanist theory in the Humanities. Posthumanism is a contested and problematic term, much like many of the other “posts” of the humanities, such as postmodernism and poststructuralism. In general, there are two types of posthumanism: “popular” posthumanism, associated with transhumanism and extropianism and critical posthumanism, all of which draws on poststructuralist and postmodernist theory and insights into animal studies in order to question assumed ontological divisions between the human and the animal.

To contribute to this ongoing discussion, I explore three “BioArtists,” artists that use life as a medium, to interrogate the permeable boundaries between the human and the nonhuman (including the animal) and the living and the “dead.” I contrast the theoretical and practical visions of BioArtists with various popular posthumanist texts in order to show their different strategies and goals. I propose that BioArt is a *creative* posthumanism, a posthumanist praxis that sustains the critique of critical posthumanism, but also creates an interface for the public to engage with these questions in a meaningful way.

CHAPTER 1 BIOART AS POSTHUMAN INTERFACE

Introduction

Director of Western Australia's SymbioticA, Oron Catts, claims that he is trying to do things for which we have no cultural language. SymbioticA allows artists to employ wet biology practices in a university science department while hosting workshops, symposiums, and exhibitions, some open to the public. Catts and his colleague Ionat Zurr head the Tissue Culture and Art Project, a subgroup of SymbioticA. They create aesthetic objects by growing and molding tissue cultures. Tissue culture art is only one specific manifestation of BioArt, a term coined by Eduardo Kac. In the most general terms, BioArt uses "life" as its artistic medium. Although Kac's definition appears to demarcate the boundaries of BioArt, we are still left to figure out what he means by "life."¹ For instance, the tissue culture artists refer to their works as "semi-living" rather than "living" or "dead." "Life" is not only Bioartists' medium but also their primary subject, with the question of life inevitably intertwined with politics, ethics, and aesthetics.

While all art may address or represent life, BioArt spawns as it manipulates, permeating the thin membrane between the living and the non-living and blurring the boundary between human and nonhuman. Furthermore, when we speak about the sanctity of "life," we usually think from an anthropocentric perspective; but BioArt asks us to think of the living in broader terms and to consider the responsibility we have toward artistic creations. As Ionat Zurr puts it, "We have to be careful of human arrogance. We need to be post-humanist. For us, species doesn't matter" (qtd.in Solon).

¹ Kac, however, is aware of this difficulty.

The term “posthumanist,” however, is just as contested as the term “life.” Indeed, we might say that posthumanism remains problematic because it designates a range of mutually exclusive suppositions. Such assumptions raise ethical concerns about what counts as “living” and the extent to which we are responsible for preserving nonhuman agency. Furthermore, although posthumanism resembles other recent academic terms such as postmodernism, poststructuralism, postcolonialism, mass culture has already associated the term posthuman with particular images, such as the cyborg or the intelligent machine. This explicit association of the posthuman with futuristic figures makes it difficult to isolate and define the theoretical apparatus named by posthumanism or posthumanities.

In fact, science fiction literature and film have always portrayed figures of new embodiments, disembodiments, and enhancements of the human being as far back as Lucian in the second century. So why does the question of the posthuman become more predominant now? Perhaps because scientists claim to make such fictions scientific fact through biotechnological practices, such as tissue engineering and genetic engineering. Rather than a medium, biological life becomes a technology to facilitate human progress.² Biotechnological practices are always framed in terms of what “we” will be able to do without specifying what the plural first person pronoun means. Although used to designate the human race, often it also signifies the plurality of the corporate or governmental body who will likely profit from new developments. Because the use of biotechnology is usually justified as a way to “better” the human race, those

² This distinction between life as medium and life as technology is not to suggest that technology does not mediate, but rather that within biotechnology this mediation remains invisible whereas BioArt forces the medium as mediation into view.

who manipulate and profess biotechnologies must take precautions to assure the public that these practices are safe, ethical, and, most importantly, will not fundamentally alter our conceptions of ourselves as humans. This assurance is particularly important when it comes to regenerative medicine. Eugene Thacker argues that since regenerative medical technologies are “indirect and facilitative” and “kept completely separated from the (biomedical) subject,” those using them can affirm that “nature remains natural” (“Data Made Flesh” 93). This way, the posthuman is kept at bay because “we” human beings control, limit, and regulate the use of these technologies rather than allow them to infiltrate, contaminate, and question our unified human position and identity.

In contrast to the utilitarian goals of regenerative medicine, BioArtists express and exploit biotechnology’s potential to invent other forms of life, ultimately challenging and subverting an unproblematic narrative of human melioration through technological progress. By creating unique hybrid forms of life that destabilize easy distinctions between living and non-living, human and nonhuman, natural and unnatural, BioArt brings to our attention the monstrous possibilities resulting from our manipulation of life. Most importantly, BioArtists *make visible* these fragile boundaries in their artistic practice. Even if bio tech companies also use hybrid forms to advance human health, according to Teresa Hefernan, they ignore the more risky theoretical implications:

The biotech companies mobilize hybridity as if humans were safeguarded from it; hence nature is merely an instrument designed for ‘our’ disposal in the pursuit of immortality. Critical posthumanists recognize that this violent differentiation between humans and nature paradoxically produces us as increasingly hybrid, as increasingly part of and produced by that other. (131)

In other words, although biotech is supposed to leave nature 'natural' and the human subject untainted, using stem cells (sometimes nonhuman) to grow, for example, organs or body parts, produce us as increasingly hybrid--always already posthuman. If we are always already posthuman, then we have no choice but to take a position towards this inevitable condition. Jill Didur has broadly defined critical posthumanism as the position that there never was a divide between nature and culture (101-102). But critical posthumanism goes further than this claim, particularly as we think through recent theoretical work in animal studies. In *What is Posthumanism?*, Cary Wolfe lays out four categories of thought that lead us away from viewing the world through an anthropocentric lens: humanist humanism, humanist posthumanism, posthumanist humanism, and posthumanist posthumanism. I use critical posthumanism to refer to the last category, which shares the anti-representationalist and anti-foundationalist positions found in Richard Rorty and Slavoj Žižek, but in addition posthumanist posthumanism further acknowledges "a second kind of finitude that, as Derrida helps us see, fatefully binds us to nonhuman being in general, and within that to nonhuman animals, as the very condition of possibility for what we know and for sharing it with another" (Wolfe 126). This second type of finitude is a radical passivity, a not-being-able, "which is the finitude we experience in our subjection to a radically ahuman technicity or mechanicity of language" (Wolfe 88). This second form of passivity challenges the distinction between not only the human and animal but the human to itself, and with that, *life* to itself: "And here [. . .] we can locate the most radical sense of Derrida's posthumanism, which finds the generative force of the *nonliving* at the origins of any living being, human or animal, who communicates" (Wolfe 91). The "nonliving" is the very technicity and

prosthesis of communication that leads ultimately to our inability to communicate. As Niklas Luhmann, an important figure for Wolfe, provocatively puts it, “Only communication communicates” (Luhmann qtd. in Wolfe 19).³ A critical posthumanism, or in Wolfe’s parlance, a posthumanist posthumanism, would have to take into account the “constitutive (and constitutively paradoxical) nature of its own distinctions, forms, and procedures—and take account of them in ways that may be distinguished from the reflection and introspection associated with the critical subject of humanism” (Wolfe 122). It is my contention that bio artists participate in this discourse in their texts and put these ideas into practice in both their research and artwork.

Critical posthumanism should not be confused with a *critique* of the posthuman. A critique of posthumanism is usually grounded in a unique, essential, and unalterable human nature, preserving assumptions of humanism. For instance, Francis Fukuyama argues in *Our Posthuman Future* that we need a meaningful conception of human nature in order to take an ethical position grounded in human rights, which will protect us from posthuman modifications that may decrease our “natural” complexity. Thus, Fukuyama argues that we need to minimize the risks (and possibilities) inherent in posthuman developments. For Fukuyama, the posthuman is an immanent threat to a relatively stable, distinctly human nature.

So we have two sides that meet in their fear of the posthuman: one hiding the risks and possibilities of their work in order to maintain a narrative of utopian progress, the other exaggerating, speculating, and exhorting us to preserve a particular conception of the human in the face of the posthuman threat. Rather than critiquing

³ Communication, here, should be understood as a synonym for Derrida’s broad category of “writing.”

biotechnology in the name of a unique, whole, closed, and complex (but standard) human nature, or using these technologies to restore the 'natural' human body in the name of medical progress, Bio Art's critical posthumanist practice in the words of Eduardo Kac, "creates new subjects" (*Signs* 19). Thus, BioArtists do not merely critique other forms of posthumanism, but produces the conditions for a multiplicity of posthumanisms; we might, then, call BioArt a *creative posthumanism*.

But what makes BioArt, *art* and not a form of activism or an alternative science? BioArt lies on the threshold of art and non-art and as such has rarely been treated as art by the critical art community BioArt engages political, social, technological, and ethical issues, but it does not present a clearly defined position. Instead, BioArt performs and creates in order to be experienced by an audience, leaving them with questions rather than answers and a desire for further research rather than rigid prescriptions of what should be (or should not be) done. In the words of Niklas Luhmann via Cary Wolfe, art's uniqueness stems from the way it "uses perception to 'irritate' and stimulate communication to respond to the question 'what does this perceptual event mean'" (Wolfe 233). The perceptual event cannot both pose and answer this question because it requires perceivers (Wolfe 229-230). This "irritation" stems from what Eduardo Kac has referred to as the necessary poetic or symbolic dimension of art. The poetic/symbolic dimension is meant to indicate the autonomy of an artwork, but this autonomy is relative. As Wolfe puts it, quoting Luhmann, "[a]rt splits the world into a real world and an imaginary world' and 'the function of art concerns the meaning of this split' " (Wolfe 234). For my purposes, "art" refers to a poetically infused performance, object, or event that does not explicitly communicate an opinion or argument to an

audience, but rather remains ambiguous enough so as to affect the audience in surprising new ways, irritating communication, and thus raising further questions about the meaning of the artwork and its (in)separation from the world. The *function* of art, as Luhmann puts it is to “make[] visible possibilities of order that would otherwise remain invisible” (Luhmann qtd. in Wolfe 224).

In this paper, I will examine how three artists subvert and exploit biotechnologies to make visible their imaginative possibilities and their material and ethical limitations: Oron Catts and Ionat Zurr’s Tissue Culture and Art Project, Eduardo Kac, and Stelarc. The Tissue Culture and Art Project builds, within museum space, laboratories containing carefully shaped tissues grown into what they call “semi-living” sculptures. The artists must “feed” the sculptures with nutrient media in order to keep them alive as well as eventually “kill” them via the audience’s touches and caresses, called respectively the feeding ritual and the killing ritual. Catts and Zurr’s visceral exhibits are meant to generate an intense, phenomenological experience as well as make visible the hidden victims of their creations, which allows for a more nuanced and material ethical encounter with other life forms. Eduardo Kac, in addition to BioArt, has designed unique telepresence works, works that minimize spatial distance and that invite the audience, in real time, to not only encounter, but also to *change* the artwork in dialogical interaction via the internet. The dialogical relationship that exists among artist, media, and audience in Kac’s work continues in his BioArt which poetically infuses biological procedures, methods, and techniques, such as genetic engineering, to re-write, mark, sign, and create new subjects and artwork for nonhumans. While Kac directs his attention to creating nonhuman subjects, performance/BioArtist Stelarc imagines new

evolutionary architectures through excessive prostheses both organic and non-organic for (post) human bodies that explode our conception of individual subjectivity. For Stelarc, split subjectivity is less interesting than split bodies, a condition where a multiplicity of subjectivities may inhabit our bodies, controlling separate limbs and even speaking from them; thus the human becomes as a node connected to a vast network of other subjectivities, neither quite merging into one unified transcendental consciousness nor maintaining individual control, autonomy, or selfhood. As Stelarc writes, “Certainly what becomes important now is not merely the body’s identity, but its connectivity—not its mobility or its location, but its interface” (“Ear on Arm”).

All three of these artists are also theorists in their own right. Thus, in addition to creating material artworks that defy easily distinguishable categories, they have contributed publications dedicated to analyzing their own work, texts which help them articulate how their art undermines the dominant rhetoric of theoretical and applied life sciences as well as the language used by other theorists and critics to describe and interpret various strands of BioArt. Catts and Zurr, for instance, are highly aware of the terminology used to describe and interpret their work. Most notably, they are troubled by the way these descriptions deploy metaphorical conceptions of “life,” especially when life is understood as “code.” Eugene Thacker claims this metaphor has dominated discourse as a result of what he calls biomedica. Biomedica “establishes an equivalency between genetic and computer codes such that the biological body gains a novel technics” (“Data Made Flesh” 91). Thacker’s point is that biomedica makes us believe we can change and control a body through reprogramming its code. While Thacker is both critical and skeptical of biomedica’s “informatics essentialism,” Catts and Zurr point out

that he too succumbs to the code metaphor he critiques: “It is interesting to note that although he discusses the problems associated with the concept of information and the concept of life, he himself, when discussing regenerative medicine feels compelled to insert it into the Decoding section of his book, but not as a technology that ‘debugs’ the information/cybernetic analogy” (“Ethics” 136). Indeed, in an essay that surely prepared the way for his book referred to by Catts, *The Global Genome*, Thacker argues that tissue engineering is responsible for the “decoding” process which generates or synthesizes biological materiality” (“Data Made Flesh” 91). Thus, tissue engineering is re-framed as the end of a process that manipulates the DNA code (a kind of reverse genetic engineering) rather than an intervention in the manipulation of life at a fundamentally different level. It is these subtle differences that Catts and Zurr seek to highlight in their projects and texts.

Thacker agrees that artists should play a role in the critical engagement with biomedicine and biotechnology. In particular, Thacker calls on new media art, including BioArt, to explore the cultural, scientific, and political dimensions of biotechnology. According to him, new media artists “create projects that deny a reactionary, reductive stance while maintaining the importance of critique” (“Data Made Flesh” 95). But he avoids explicitly associating these artistic approaches in terms of a critical (or creative) posthumanism, preferring to use “posthumanism” to describe only the transhumanist, extropian posthumanisms of theorists such as Ray Kurzweil and Hans Moravec. The posthuman wants to have it both ways: “on the one hand, the posthuman invites the transformative capacities of new technologies, but on the other hand, the posthuman reserves the right for something called ‘the human’ to somehow remain the same

throughout these transformations” (“Date Made Flesh” 94). It is precisely here that we can understand BioArt as intervening as creative posthumanist art praxis.

Biohacking: Disguising Transhumanism

Thacker is correct that biotech depends on an equivalence of genetic and computer code. He himself mentions the possibility that biology could become “open source,” heralding an innovative revolution analogous to those brought by the PC and internet. Enter “biohacking,” a name that already deploys a dominant computer metaphor (“Open Source” 41-42). Although many BioArtists support do-it-yourself biology, including home tissue culture kits, these organizations’ rhetoric taint their ability to exhibit a critical attitude toward the biotechnologies they employ. Indeed, not all, but some biohacking and do-it-yourself biology groups are directly connected to the extropian, transhumanist projects that several critical posthumanists are right to critique. The *Open BioHacking Project*, for instance, contains a direct link to extropy.org and indicates its participation in the Transhumanist Technical Roadmap. This project provides a free “kit,” consisting of documents rather than any material technologies, for those who wish to become biohackers. Furthermore, the rhetoric on the site clearly locates the practice as a utilitarian project or novelty aesthetic rather than close critical engagement:

Join the fight against cancer, against all sorts of disease! Or would you rather see some glowing bacterium, get your own ecoli set up to amaze your friends [. . .] you can’t ignore these awesome possibilities (or even some not so cool ones*)

Thus, the project strives to open access to these technologies, but for the purpose of fighting the good fight alongside scientific engineers, or, a more mundane

goal: to 'amaze' our friends, as if it were a magic trick. If we follow the astrix to the end of the page, we are led to alarmist and reactionary rhetoric:

It is a real threat *now* and ignoring these threats is not a solution. Indeed, the broader purpose of this project is to *counter* these threats via the mentioned roadmap and its developments so that we will not be harmed by script kiddies running wild [. . .] People are dying and so will you, unless you try.

First, we should note the conditional in the last phrase: people are dying and so will you, *unless you try*, which implies that death is unnecessary—a questionable if not ridiculous claim. Second, and, ironically, script kiddie is “a derogatory term used to describe those who use scripts or programs developed by others to attack computer systems and networks and deface websites,” in other words, a *hacker* (Lemos). We may well ask: why does the site’s manager, Bryan Bishop, a transhumanist, use Biohacking to describe his own project, but uses this derogatory term to describe other hackers?

The answer to this question, I believe, lies in biohacking’s sheer conformity to scientific research governed by market logic. Biohackers and BioArtists alike may support opening science to the public, but the former’s goals are generally uncritical. Biohackers want to contribute to the biotech industry by creating and innovating outside of dominant companies and research facilities, but without questioning the industry’s fundamental assumptions. Furthermore, community and personal labs serve as an indirect advertisement for applied scientific research. Neither of these goals indicates a desire for a significant change to the social, cultural, and political status quo. We can illustrate the inappropriateness of the term “Biohacker” by considering a recent review of

Mark Wholsen's book *Biopunk: DIY Scientists Hack the Software of Life*.⁴ While 'Biopunk' is a catchy title for the book, particularly given its current status as a genre of science fiction, David Grushkin, himself one of the founders of a community laboratory in NYC, claims that many in the community "feel less like 'punks' than investors in the biotech future" ("Book Review"). Still, even with this emendation, Grushkin leaves the term biohacker unchallenged; most likely because it sounds edgy, dangerous, and subversive. But, again, biohackers are hardly subversive, given their connections to transhumanism, commercial goals, and, most importantly, the material limitations of most of the DIY community's activity. As Jason Boebe, a key player in the movement, points out:

The amateur activity right now is at the seventh- or eighth-grade level," he says. "We're making \$10 microscopes and all of the discussion around us is about weaponized anthrax. Sure we're concerned about that just like everybody else, but I don't know what to say except 'Yeah, that sounds scary as hell. Let's be sure nobody does that. (qtd. in Ledford, "Garage Biotech")

Neither BioArtists nor Boebe and his fellow biohackers are bioterrorists, but the adoption of the term 'biohacking' rather than a more innocuous term may perpetuate this misconceived image.⁵ Furthermore, although to a lesser degree, this article still uses the same kind of alarmist, preservationist rhetoric as The Open Biohacking project, deployed as a counter-terrorist tactic. Indeed, if most biohackers are working on a 7th or 8th grade level, it is an exaggeration to refer to these tinkerers and amateurs as

⁴ This is the only book on Bryan Bishop's Facebook page under his interests

⁵ But it is worth noting that Steve Kurcz, a member of the Critical Art Ensemble, was treated as a bioterrorist. See the film *Strange Culture* (2008) for the story.

“hackers.” Even if we allow the hyperbolic term, we may still associate this official and legitimate movement of biohackers with either a reactionary posthumanism or, what amounts to basically the same thing, a utopian transhumanism, both of which are challenged by the creative posthumanist practice and theoretical work of BioArtists. In this sense, it is important to reveal the origins of the movement as another disguised humanism that re-inscribes false binaries and maintains the sense of human control over technology and our dominion over the nonhuman.

Low Resolution: Bioart and Legibility

BioArtists are accomplishing more than critiquing unproductive, conservative, and anthropocentric “posthumanism.” Through their texts, performances, and artworks, they are forging a new language for describing and understanding “life” alternative to the rhetoric of the biotechnological industry and do-it-yourself biohackers. If BioArt only consisted of critique, then BioArt would reproduce the same kind of agency and re-inscribe the humanist subject that their artwork seeks to undermine. As Nicole Anderson argues,

And thus what this particular bio-art exhibition, and much bio-art in general, attempts, is to use the interactivity of the exhibits to foster affective responses that challenge the normative perception that humans, and thus human subjectivity, stand outside of, or apart from, the biological system (nature). Yet, at the same time, the exhibition also aims to increase agency in a progressive way, but in wanting to do this, the curators are stuck with a model of the critic that sounds very much like an Arnoldian view that advocates an objective and ‘disinterested’ viewing of literature or art. (107)

Natalie Jeremijenko, in *The Environmental Health Clinic*, for instance ‘prescribes’ actions that work toward improving local environmental health. An individual makes an appointment and walks out of the clinic “with a prescription not for pharmaceuticals but for actions: local data collection and urban interventions directed at understanding and

improving your environmental health” (Jeremijenko qtd. in Anderson 104). Claire Pentecost reads Jeremijenko’s work as directed toward the non-expert. Her work demystifies the science that alienates the public from the commercial applications of scientific research that have profound effects on their lives. Thus, Pentecost concludes that Jeremijenko makes science “legible” to the non-scientist.

But as Richard Doyle points out, there are dangers to rhetorics of transparency, which biologists have employed to tell narratives of “resolution.” According to Doyle, life is understood in biological discourse as completely legible, a “transparent sequence that has nothing behind or beyond it” (13). Doyle locates the shift to what he calls the postvital body in biologists’ research on *C. elegans*, a worm that is transparent “both literally and figuratively,” that leads researchers to claim that “[y]ou can look at it and say ‘that’s all there is’” (Doyle 14). If this claim is true, there is nothing *illegible* or *invisible* behind or beyond what the researcher can see. Doyle argues that scientists aim for high *resolution* in two senses. If we assume *C. elegans* essence as transparent, then the task is to use technologies in order to draw higher resolution maps of the worm. “With this meaning of *resolution*,” Doyle writes, “we see that it rests on the ability of an observer to recognize and perhaps, make differences” (Doyle 19). While some of the worm remains invisible until the observer achieves higher resolution, this is only in the sense that it is blocked from their view, but which is still on the register of the visible and thus is, theoretically, *possible* to see. The second meaning of resolution for Doyle is closure, “an effort whose explicit goal is to make it possible to say ‘that is all there is’, to resolve the question and story of *C. elegans*” (Doyle 19). If we can close the story on *C. elegans*, then we could claim that there is *nothing more to see*, that nothing remains

invisible, illegible, or ambiguous. Doyle argues that this marks a different kind of aesthetic from the aesthetic of the sublime; this is an aesthetic of “complete understanding,” that finds nothing sublime; this sublime is marked by “the joyous disbelief that, finally, there is nothing more beyond our gaze [. . .] that there is no secret” (Doyle 20).

In contrast to BioArtists, biohackers buy into this rhetoric of resolution and transparency. Biohackers assume that we have figured out how to manipulate life and that once we make this information and technology open source, the public can contribute to commercial technological innovations. For biohackers, science should be and *can be* made ‘legible’ as a means to a commercial end. Jeremijenko and other Bio artists, on the other hand, make science “legible” and “visible” as a public art rather than as an informational resource to be mined for further development and progress in the commercial sphere. For example, in a recent conversation with Benjamin Bratton, Jeremijenko describes her Hudson Glow Fish project, a project that deliberately maintains *low* resolution images rather than high. In response, Bratton elaborates that the real issue is not how much data is produced or “the resolution of a portrait at a given instance” but rather “the aggregation of actions taken in relationship to those images and the aggregation of those relationships to each other” (Bratton & Jeremijenko 41). That is, how these projects come together to effect a macropolitical change. Thus, Bratton and Jeremijenko argue that what matters is the image as an *interface*, a function that many data visualizations lack, due to a concealing of data collection methods or even how to read the visualization, meaning that we can only stare at it in wonder: the image is a black box we cannot open. These visualizations presume that

somewhere an expert can make sense and interact with this image – but we cannot. The artist’s task, Jeremijenko explains, is to give “people the capacity to interpret and a license to have an opinion on a complex technical issue” (Bratton & Jeremijenko 47). Thus, ‘legibility’ is decidedly *not* the same as transparency, since the display must become a means to change the status quo.⁶

While the three artists I discuss do not necessarily create the same kind of public art that Jeremijenko produces – art that has a direct impact on the surrounding environment--all three artists are interested in constructing an *interface* with the public. Catts and Zurr, Eduardo Kac, and Stelarc avoid directly telling the audience how to (re)act to their work, but they, like Jeremijenko, want to help the public engage with the biotechnologies by giving them a license to “interpret.”

⁶ The “actions” that The Environmental Health Clinic prescribes, for instance, are creative and playful design projects that provoke further awareness and action rather than a top down political (re)olution or a quick technological fix. One of these creative and imaginative actions the clinic has prescribed that we could loosely categorize under BioArt is the “NoPark.” The NoPark is a “micro-engineered green space” constructed near fire hydrants which still can serve as spaces for emergency vehicles (the vehicles will just knock a few plants down) while improving the health of the surrounding environment by reducing water run-off that collects in these spaces, functioning in a way similar to green roofs (“NoPark”).

CHAPTER 2 CREATIVE POSTHUMANISM IN THREE BIOARTISTS

Cultured Tissues: Oron Catts and Ionat Zurr

Oron Catts and Ionat Zurr, the artists behind the *Tissue Culture and Art Project* use tissue engineering to grow what they call semi-living entities. The artists call these semi-living sculptures “evocative objects,” a term picked up from Sherry Turkle (“Semi-Living” 5). Turkle’s *Evocative Objects* is a collection of essays by a variety of representatives from different disciplines, whose narratives show how objects have played a role in their emotional and intellectual lives. Turkle, in turn, draws on Claude Levi-Strauss to elucidate her main concept: “Material things, for Claude Levi-Strauss, were goods-to-think-with, and [. . .] good-to-think-with as well” (Turkle 4). Evocative objects are different than tools or aesthetic works; rather, evocative objects bring together “intellect and emotion” such that they become “companion[s] in life experience” (Turkle 5). Turkle’s conclusion to the collection ponders the consequences of biotechnologies, and could very well serve as a summary description of what the *Tissue Culture and Art Project* seeks to achieve: “As we begin to live with objects that challenge the boundaries between the born and created and between humans and everything else, *we will need to tell ourselves different stories*” (Turkle 326). In Catts and Zurr’s words, their evocative artwork has the potential to “suggest scenarios of ‘worlds under construction’ and subvert technologies for the purpose of creating contestable objects” (Catts and Zurr, *Signs* 232). That is, their project begins to tell different stories and construct different pictures.

But before we delve further into specific projects, it is useful to explore the familiar rhetoric surrounding tissue engineering’s current uses. We should recognize

that the language used to communicate information about these technologies to the public is not necessarily the same as language used by tissue engineers; however, given bio artists' insistence that we demystify, communicate, and involve the public in the practices at hand, we must pay attention to its popular narrative and visual presentations. As a prime example we can look at the 2011 PBS NovaScienceNow documentary, *Can We Live Forever?*, which tells one possible story about cutting edge tissue engineering technology. First, we should inquire into why we frame tissue engineering in terms of the title question: can we live forever? This already plays into the desire for immortality prominent in transhumanist discourse. The video's tissue engineering segment is accompanied by segments about slowing the aging process and creating life-like avatars that would continue to interact with people after we die. Furthermore, the "we" saved by these technological practices is restricted to human beings with little consideration for the nonhuman, except as a resource for growing human body parts and saving human lives. We will return to this issue later.

The segment opens with Neil Degrasse Tyson, astrophysicist and science popularizer, fixing a car in an auto shop. Tyson draws an analogy between the car parts and our body parts "breaking down," claiming that whereas we used to rely on transplants that were scarce and possibly rejected by the body, "the dream of custom made personalized body parts may finally become a reality" (*Live Forever?*). The video then presents images from the popular science fiction film *The Island* (2005), where people grow clones and harvest organs in order to live forever. This use of SF film exemplifies Eugene Thacker's claim that "science fiction now internally conditions and structures biotech research" ("Science Fiction" 157). This means that the biotech

industry determines their goals based on possibilities suggested by science fiction texts. However, Tyson's voiceover claims that we do not have to resort to such "diabolical" schemes, and that "real science" can grow organs with "no clone attached" (*Live Forever*). Thus, dystopian science fiction film becomes one way science can measure its progress because the biotech industry implicitly claims that we can attain the result (living forever) without the ethical and moral predicaments of harvesting organs from clones. For instance, Doris Taylor, a leading researcher on stem cells, speculates that we will "walk into a manufacturing facility" and be able to pick out any organ we need from jars on the shelf. One might ask, however, about the cost of not only the individual organs themselves but also the cost of literally turning our bodies into commodities to be bought and sold.

In the video, organs are metaphorically understood to function like architectural buildings, "a collection of parts that have to come together and work together," where cells function in a manner similar to cinder blocks and the "internal framework" of the organ functions as a "scaffold" to guide the cells growth (*Live Forever*). While some body parts, such as an ear, can be constructed around "biorubber," a material that cells take to easily, more complex body parts, such as many human organs, cannot use this material as a scaffold due to the organ's inadequate "plumbing," its lack of blood vessels. Organs are not only made up of cells but also proteins that make up a "natural" scaffold (we will return to the natural/artificial binary later). To distill this scaffold, scientists had to set up trial-and-error experiments to find a chemical that could "wash away" the cells while leaving the scaffold completely intact.¹ Taylor and her colleague's

¹ Doris Taylor calls the bare scaffold of the heart, a "ghost heart," that is "beautiful" but has "no cells dead or alive." The rhetoric Taylor uses here is interesting because, on the one hand, Taylor

paper that details this process, “Perfusion-decellurized matrix: using nature’s platform to engineer a bioartificial heart,” published in *Nature Medicine*, gives us a clue to the difficulty in classifying these beings, as the title suggests that the “platform” (or scaffold) is natural, but the resulting organ is “bioartificial.” A bioartificial organ is any organ composed of biomaterials and cells (Reference.md.). Biomaterials are “any material, natural or man-made, that comprises whole or part of a living structure or biomedical device which performs, augments, or replaces natural function” (“Exploring Materials Engineering”). Whether or not the biomaterial is “natural” or “manmade” is irrelevant to the development of the bioartificial organ because in the laboratory, “the cells sprout on the matrix and *start to dissolve it* and replace it by *private proteins* – the entirely autologous bioartificial tissue originates” (“Bioartificial Organs”). This process takes place *before* the organ is transplanted into the patient, so that even when it’s located

suggests that the heart is stripped of the individual person’s cells, becoming a kind of blank slate for new cells to grow on. On the other hand, however, the term “ghost heart” suggests a heart not fully exorcised-- a haunted heart. To unpack the significance of Taylor’s ghostly terminology, we have to think through how we understand individuation on a metaphysical level. If we think that an individual’s cells are somehow akin to a the “spirit” of a person, then the ‘scaffold’ becomes a universal, common, substance that we can subsequently infuse with another’s spirit. However, if we reject this interpretation, then we are left with admitting that the “scaffold” is still specific material from an individual, that leaves a trace of whatever or whoever donated this organ.

It is also interesting to ask: what is the status of these organs at their different stages of development? To make this more specific, we might ask, is the “natural scaffold,” stripped of cells *living or dead*, non-living material? If so, then the only significant difference between the ‘natural’ scaffold of the organ and the artificial scaffolds made of biorubber is that the “natural” scaffold is more complex, but that both are fundamentally non-living. According to Taylor, seeding cells onto a scaffold is not enough to allow the organ to become once again a “living” organ, but rather one has to create an “artificial body” that supplies oxygen electricity, and blood pressure to the organ. However, Taylor claims that the organ is still “dead” until the heart beats on its own, implying that *this* is when its life begins: “It really makes you go: what is life? The first time you see something beat that was. . .dead. . .it’s one of those “yes” moments in life” (*Live Forever*).

outside the patient's body, and because the organ is made up of "private proteins," the organ is already designated as the patient's own.²

But even though the scaffold eventually dissolves, the claim that we will have access to an "unlimited" supply of off-the-shelf organs fails to take into account that the "natural" scaffolds made by washing away cells must come from somewhere – a cadaver, an animal, another human being. We cover over the ethical issues by asserting that once the scaffold is seeded with "my own" cells, the organ becomes *mine*, identical to the one that needs replacing. The bioartificial organ created from a "natural" scaffold undergoes a double erasure: first, the cells are washed away and then the scaffold dissolves and replaces the patient's proteins, so that the patient's cells are like parasites that eventually consume the "donor" rather than live with the knowledge that it is "someone else's" liver or heart implanted in their body.

I focus on the problem of individuation because the advantage of using scaffolds and the patient's *own* cells is that the body will not reject it. The video's rhetoric thus preserves a sense of a unified subject, uncontaminated by parts of other beings. Thus, organ growing is deemed superior to transplants, I argue, not only because we lack sufficient donors, but that organ growing gives us a sense of ownership that erases the feeling that there lies in one's body a trace of the other. The video illustrates this point with the story of a tuberculosis patient in Spain, Claudia Castillo. Castillo was offered the chance to replace her windpipe with an engineered one, "which her body would never reject because it was grown from her *own* cells on a *natural* scaffold" (*Live*

² I have attempted to find other sites, articles, or medical uses of the term "private proteins," but cannot find any instances except on the website "Bioartificial organs," a site for a tissue engineering company in Germany.

Forever). Claudia even says, “I feel like the transplant is not from the body of another person, it’s *mine*.” This sense of ownership, so Tyson tells us, is important because eventually scaffolds may not come from *humans* but animals. By stripping away the cells to the ‘bare’ scaffold, regardless of whether it comes from animal or synthetic material, and maintaining that organ really is “made” from the patient’s own cells, tissue engineers ease the fear not only that the body will reject the organ but that their patients are now part pig, cow, or other nonhuman animal.

We are more comfortable with the tissue engineering of living organs or other body parts because they will eventually be incorporated and owned by a human body, with little--if any--outwardly apparent modification or hybridity. However, when we grow entities that have no immediate use to human beings, but are instead semi-autonomous, semi-living entities whose survival depends on our care, we see these entities in terms of Frankenstein’s monster, a transgression of the natural order--even if tissue engineers must constantly transgress this “natural” order in their every procedure. The semi-living is simultaneously related to us, but, at the same time, separate from us, demanding active ethical response rather than an unthinking assimilation into our bodies. This fact disrupts the desire to call the semi-living our “own” even if it happens to be composed of some human cells. Not only, as Eugene Thacker puts it, does tissue engineering attempt to preserve the “*biology/technology divide at the same time that this division is constantly transgressed*” but it also attempts to preserve the human/animal divide while necessarily transgressing these boundaries (*Global Genome* 269).

Catts and Zurr's work, rather than trying to preserve the distinction between natural/artificial, biology/technology, and human/animal, make visible the fuzziness of these categories through growing Semi-living sculptures as well as their use of language to describe these projects. Donna Haraway in her seminal text, "Cyborg Manifesto," claims that the cyborg is the center of her "ironic faith," her "blasphemy" ("Manifesto" 149). Similarly, Catts and Zurr claim that "irony is one device to avoid self-righteousness, and it can be used as an attempt to keep the critical aspects once it is out of the studio (or laboratory) and into the 'free market'" ("Ethics" 131). Whereas we can find little irony in scientific papers such as Taylor's discussed above, Catts and Zurr's "Victimless Utopia" series, which includes the works *Semi-Living Steak* (2000), *Disembodied Cuisine* (2003), and *Victimless Leather* (2004), use the term "victimless" ironically. *Disembodied Cuisine*, for instance, appears to offer the possibility of eating meat without killing animals because the "steak" is made by spreading frog skeletal muscle over biopolymer, with the healthy frogs living alongside at the exhibition. Thus, the steaks could mature while the animal was still alive and recovering. However, as Catts and Zurr point out, the steak is not entirely victimless since current methods of tissue culture require nutrients derived from animals killed solely for the production of nutrient serum ("Ethics" 133). *Cuisine* ended in a "feast" where artists and volunteers consume the steak. The site of the feast, judging from the pictures, is a standard, bourgeois table complete with a bottle of wine, plates, utensils, and wine glasses, but located in a clear plastic box marked by a large biohazard sign. The Semi-living steaks are placed in petri dishes on the china, creating a surreal juxtaposition of a toxic area and a welcoming dinner table.

In his essay, “Theorizing Posthumanism,” Neil Badmington asks what we should do with the “human remains” as we attempt to transition to a posthumanist orientation (13). Although Badmington refers specifically to the necessity of working through a humanist theoretical position, I find the metaphor also helps to consider the many material and ethical limits of a “victimless” utopia. Catts and Zurr highlight the gap between the rhetoric of their titles and the reality, when they decided to exhibit the remains of the semi-living steaks from *Disembodied Cuisine*, presenting us with one example of “people’s consumption/rejection of the new technologies” (“Remains”). The table is taken out of the bio-hazardous viewing area, but everything else remains on the table, now with petri dishes of partially chewed “meat.” On the table are three screens that show a film, Pictures at an exhibition: *Disembodied Cuisine by the Tissue Culture and Art Project*.³ From the photographs on the website of the “remains,” we can see that the video documents how the steaks were grown, even displaying images of a cow eating grass, the “hidden” victim of tissue culture, finally made visible for all to witness.

“There is no way to eat and not to kill,” writes Donna Haraway, “no way to eat and not to become with other mortal beings to whom we are accountable, no way to pretend innocence and transcendence or a final peace” (*Species Meet* 295). For Haraway, the challenge of a responsible ethics is to “nourish indigestion,” which means to confront the “finite, demanding, affective, and cognitive claims on me and the world, both sets of which require action and respect *without resolution*” (*Species Meet* 300). The *Disembodied Cuisine* presents us with another possible way of incorporating engineered tissue into our bodies – through consumption rather than transplantation,

³ The video is directed by Jens Hauser, a leading theorist of Bio Art and artists.

shifting the question of the body's rejection from the molecular level to the phenomenological. Rather than emphasizing what tissue engineering *can* do, this exhibition asks us to think about what it *cannot* yet do: allow us to escape from the necessity of killing in order to eat. By confronting the other from the perspective of common taste, we consider the many different ways the body can react, reject, or accept other beings that differ from ourselves.⁴ Like Zurr and Catts' claim that their artwork is supposed to create "contestable futures," Haraway invites us to "speculate, imagine, feel, build something better" (92). Most speculations may be greeted with a snide comment about that happening "when pigs fly," to which Catts and Zurr might point us to their work *Pig Wings* (2000-2001), made by growing pig cells over a biodegradable polymer shaped like three different types of wings: bird wings (angelic), bat wings (satanic—War pigs?), and Pterosaurs wings.

Taste is just one way Catts and Zurr have allowed the audience to view the semi-living. Mere touch by humans or the environment outside of its sustaining bioreactor can "kill" the semi-living. Actually, they *must* kill the artwork since they cannot transfer the entities across the border and no one wants to take up the care for the sculptures, given what materials are necessary to keep them (semi) alive. This so-called "killing ritual" involves the audience on a visceral level, as the artists remove the sculptures from their artificial environment (bioreactor) and let the audience "touch (and be touched by) the Semi-Living entities" ("semi-good or semi-evil" 6). Ironically, a human caress kills the Semi-Living, highlighting one significant difference between us and another living

⁴ It should be noted that the artists have been contacted by the president of PETA concerning the possibility of taking a biopsy from her own body in order to grow a semi-living steak that she will then consume as an act of (self)cannibalism to highlight that, from her perspective, any consumption of meat can be cannibalism ("Ethics" n. 18).

system. The artists have, however, expressed the interest to develop “an external protective membrane,” a skin that would allow “a direct and tactile interaction with the audience” (“semi-good or semi-evil?” 6-7). Catts has recently said that one of the reasons they must publically display the semi-living entities is because he wants to facilitate the most unmediated, visceral experience possible, since we are exposed to so many manipulated images we no longer believe what we see (“Merging Art and Science”).⁵ However, as Jens Hauser reminds us, many can only access BioArt through secondary mediation: “wet biological art is mainly presented via and judged upon through secondary texts, documentation, and other mediated paratexts” (85). Furthermore, the art exhibit already mediates our experience with the semi-living. Confronting the semi-living in a laboratory as part of a SymbioticA workshop is different than confronting the work in the gallery. Catts and Zurr’s current retrospective in Poland, in which they have recreated most of their work, includes both the regrown tissues and large photographs of the work, some of which are reproductions of photographs from past exhibitions that are also displayed on their website

But Catts and Zurr already tried to get their point across through representation in their early works and prefer the presentation of the semi-living entities within an art gallery or in the lab during a workshop. Ultimately, I would argue that their insistence on showing the actual tissue culture is not an attempt to create an entirely “unmediated” experience, but rather, to illustrate that the semi-living have a kind of agency of their own. Eugene Thacker claims that the semi-living entities are good examples of what

⁵ In addition, Adele Senior points out that the killing ritual challenges both the “laws” of the laboratory, because the act of “killing by touch is somewhat taboo, defying proper and accepted [. . .] procedure” and the “laws” associated with the art gallery: “please do not touch, food and drink may not be consumed, potentially harmful substances and implements should not be brought into the gallery” (Senior 107).

Latour calls actants, “neither actors (in the sense of agency presumed to lie in human subjects) nor objects acted upon (in the sense of instruments or resources” (*Global Genome*). This agency, though, is not exclusively located in the cell’s internal characteristics, including its DNA. Rather, the tissue culture produces a co-agency with its surrounding environment. The Semi-living’s ability to *grow* and *change* allow for unpredictable results, so that not only the audience, but also the artists, are never in complete control of the artwork. For instance, in a recent interview with Stephanie Kramer of the *Urban Times*, Catts tells the story of the MOMA *Victimless Leather*.

Throughout the first couple of weeks on the show some of the cells sheared off the 3D scaffold. There’s a special system that we designed that ‘feeds’ the jacket and the cells started to travel along the system and started to clog the tubes so about 4-5 weeks into the show, the curator decided to turn it off. There was this whole discussion that generated some kind of media sensation with NY Times having a headline of “MOMA kills art” and other journalists referred to it as “Murder in MOMA.”

Thus, although the audience does not directly interact and change the work, with the exception of the ending “Killing Ritual,” the artwork still changes as a result of its surrounding environment. In this sense, we can understand Catts and Zurr’s work as fully dialogical art, as defined by Eduardo Kac, as art that changes through a recursive interaction and connection with an audience. Even though it may not be the audience that provides particular inputs, all the parts of the *Victimless Leather* function as a networked ecology, with the cells as only one of the actants that direct its growth and development as a living artwork. I turn now to the works of Eduardo Kac.

Nonhuman Subjects: Eduardo Kac

If Catts and Zurr argue that mediation is an obstacle to be overcome as much as possible in their artwork, despite their reliance on several forms of mediations including academic texts, photographs, interviews, and videos, for Kac, these same mediations form an essential supplement to his artwork. Each of his transgenic creations are accompanied not only by artist statements, but works in more “standard” artistic media, including watercolors, lithographs, and sculpture. Kac, to a certain extent, is the most traditionally “aesthetic” BioArtist of the three discussed in this paper. Although, in the context of Kac’s work, this word is hard to define, as James Elkins argues in his foreword to Kac’s collection of essays, *Telepresence and Bio Art*. According to Elkins, “what matters [in Kac’s work] is the form and novelty of the communication itself, rather than its affective value” (viii). However, this characterization of Kac’s work is a bit unfair, considering that he uses relatively traditional artistic media, in addition to the novel telepresence mediations, which provoke an affective as well as intellectual response. However, unlike the Tissue Culture and Art Project’s early goals to represent the experience of confronting the Semi-living, of which the photographs and videos are seen as only an approximation--a pale simulacra of the entities themselves--Kac’s supplemental works that completes whatever series he is working on, I argue, further disrupt an easy communication of the both the created biological subject and the theoretical and interpretive texts written by Kac, creating an artistic as well as theoretical and discursive response to the creation of transgenic life. Let us first take as an example Kac’s most notorious work, GFP Bunny.

GFP Bunny is a project centered on a transgenic albino rabbit genetically modified by Kac. The bunny, named “Alba,” is indistinguishable from a “normal” rabbit,

except when placed under certain light conditions; only then does Alba glow bright, neon green, visually distinguishing herself as a unique creature. However, the creation of the rabbit is only one aspect of the work, which includes the public dialogue and the social integration of Alba, where Alba and the artist are only two of the participants in the ecology of the artwork. While Alba was supposed to eventually come home with Kac to be incorporated as part of his family, the institute that helped in her birth would not let this happen, sparking a public debate and the Rabbit Remix series. This is just one way that Kac's work, as he writes,

Remain[s] truly open to the participant's choices and behaviors, to give up a substantial portion of control over the experience of the work, to accept the experience as it happens as a transformative field of possibilities, to learn from it, to grow with it, to be transformed along the way. (Telepresence 272)

But some critics, such as Claire Pentecost, have argued that the GFP Bunny remains a "well-executed fetish object" (118). Because Kac leaves the complexity of the reasons Alba was kept from his care, choosing instead to post a message board on his website, The Alba Guestbook (2000-2004), where the public could debate the issue, he displaced the "controversy to a battle between the individual (artist) and the authority (insensate institution)" (Pentecost 118). Pentecost concludes that Kac's work does little to demystify science and instead re-instates the artist as creator and sole owner of Alba. But this is precisely why we must look at the entire ecology of his work.

Indeed, the discourse produced in The Alba Guestbook may reduce the complexity of the situation to individual vs. corporate ownership, but there are some dissenting voices. In a January 2007 post a person signing as 'dogirl' writes,

hey Eduardo, why not set yourself free from the expectation that family living is somehow liberating? for who? and from what? you offer Alba patriarchal domination, assimilation into nuclear culture, eventual throwaway in consumer society . . . otherwise why would you need her to

be not simply a laboratory freak but also female and a member of a species living on the pet/meat line?

While the point is well taken, it is not nearly as interesting as a post from two minutes later that signs as “Alba,” appropriating a bunny subject position:

Dear Dogirl, I think you're mistaken. Who are YOU to say that this or that family ir [sic] more or less liberating? Where did you get this idea from, anyway? Nobody here ever said so. Don't you appreciate the companionship of those who you love? Eduardo does not offer me patriarchal domination, assimilation into nuclear culture, or eventual throwaway in consumer society. The poor guy is just trying to get me home! Do you have a home, dogirl? I don't. Instead, here I'm, in a cold cage, alone, wasting my time responding to these silly neo-marxistoid emails. Where's my carrot?

Alba

The writer surely is not Kac himself, as he makes explicit in his writing that “as we negotiate our relationship with our lagomorph companions, it is necessary to think rabbit agency without anthropomorphizing it” (*Telepresence* 273). The author signed Alba here, however, produces stereotypical humanistic assumptions that we impose on animals by his or her last comment, “Where’s my carrot?” The writer also gives us a humorous, anthropomorphized image of a rabbit responding on a computer to these “Silly neomarxistoid emails,” which, by referring to the human theoretical construct of Marxism, only further distances us from confronting the being-in-the-world of Alba.

While one could argue that Kac “speaks for” Alba by creating public works like the *Alba Flag* (2001) or *Free Alba* (2001-2002) photographs, we could also understand these as the artist’s response to the public’s response. That is, even though Kac planned for Alba to live with him at home, that this is also not an unproblematic outcome. My point is that in his writing Kac does not highlight the idea that he should own Alba or that the point of his subsequent work is merely to retrieve Alba. Rather, if

we look at the *Free Alba* photographs, for instance, they display people holding papers with articles *about* Alba. Thus, Kac makes visible the media's role in constructing the narrative that Pentecost finds reductive, using the *media as medium*, as Simone Osthoff argues (122). Cary Wolfe even argues that Kac uses the theatrical spectacle constructed by the media as a "lure that trades upon the very humanist centrality of vision that Kac's work ends up subverting" in the same way that we cannot find the meaning of Alba by looking at her – even when she glows green: "we might well say the meaning of the work is everywhere *but* there" ("From *Dead Meat*" 105-106). Wolfe thus interprets Kac's work as revealing our own desire that our visual sense can decipher and *resolve* the meaning of a given phenomenon; indeed, not even Kac can fully "express" a definitive, unchanging, meaning for his work.

Kac further emphasizes the inadequacy of the exclusively human sensorium by avoiding speaking definitively "for" Alba as the creator/owner. To accomplish this, he creates other artistic works, such as *Lagoglyphs: The Bunny Variations* (2007), a series of prints that suggests a "visual language that alludes to meaning but resists interpretation, the lagoglyphs series stands as the counterpoint to the barrage of discourses generated through, with, and around Kac's "GFP Bunny" ("Lagoglyphs"). This is an imaginative and symbolic rabbitographic form of writing rather than the actual "writing" (teeth marks, tracks, etc.) that we might assume animals to produce, and is addressed to human viewers. But the meaning of the writing – what it communicates – remains translucent at best to human vision. The writing should be seen as an attempt to at once connect us with Alba as a fellow communicating/writing being as well as inviting us to consider how a rabbit might see the world. As Kac writes, "understanding

how the rabbit sees the world is certainly not enough to appreciate its consciousness, but it allows us to gain insights about its behavior, which leads us to adapt our own to make life more comfortable and pleasant for everyone” (*Telepresence* 274).

A more recent work of Kac’s, “Natural History of the Enigma” (2003/2008) has taken the hybridity of human/nonhuman to even greater lengths. Kac calls his creation as a “plantimal,” a hybrid organism consisting of a Petunia strain engineered by Kac that expresses his DNA in its red veins, evoking “the living image of human blood rushing through the veins of the flower” (“Natural History”). This work fascinates on many levels. First, the part of the organism that consists of a plant, which frequently serves as a metonymy for “nature,” is actually an engineered organism that cannot be found in the wild. Thus, even though the petunia is “living” as an independent organism, it is still *artificial*. Furthermore, because of its outward shape, we still think of it as, essentially, a petunia. The “natural” element is the human DNA, which the plant (eventually) incorporates into itself as part of itself. But the gene selected by Kac is the gene in his immune system “responsible for the identification of foreign bodies” so that it is precisely “that which identifies and rejects the other” that he integrates into the other (“Natural History”). This forms a hybrid organism part plant and human, but one that takes the visual form of a plant; it is not the plant slowly integrated or assimilated into the human, but the human infused into the plant in a non-anthropomorphic form. The resulting organism is named Edunia, a hybrid of Eduardo’s first name and Petunia, a name which also evokes in my mind *eudemonia*, the Greek word for well-being.

Edunia, I think, can be read as a continuation of another hybrid artwork that used the artist’s blood, *A-positive* (1997), where Kac created a symbiotic exchange between

himself and a robot. In this work, he donated blood to the robot which extracted oxygen that it then used to maintain a small flame; in return, what Kac calls a “phlebot,” donated dextrose to the human body intravenously: “by presenting a robot with circulating human blood and an apparent will of its own, it speculated on the future properties of biorobots” (*Telepresence* 225). As in Edunia, the artificial life created is non-anthropomorphic and though is not literally “living,” symbolically produces a sign of life. He does with robots what he does with plant life, which is to indicate that far from plants and robots functioning as beings for our consumption and use, they possess an agency in our complex ecosystem of technological and biological existence. The main difference between Edunia and *A-positive* is that the latter was mostly a symbolic, one-time event, whereas Edunias can in theory be distributed and planted everywhere as *unique beings*: Kac emphasizes that each plant grown is entirely singular. Kac even made limited edition Edunia seed packs, which contains seeds to grow your own Edunias. The seed packs are formed in the general shape of a bat-winged butterfly but which vary in exact shape. These open to reveal text that explains how one would care for this special plant.

The seed packs both mimic typical commodity form while also disrupting it. The packs’ discourse, identical in all six, addresses the viewer directly: “A prolific bloomer, the Edunia is free flowering in the garden and weather tolerant. It is an annual that will grow ten to fourteen inches (25-30 cm) high with 4-inch red-veined wavy-edged blossoms. Good timing and uniformity in flowering guaranteed” (“Natural History”). This rhetoric is familiar to anyone who has bought mass distributed seeds for growth, complete with “normal” and uniform growth expectations. Furthermore, the seeds

contained in the pack lack the unique and uncanny beauty of the plant itself; the seeds, then, are essentially taken out of context: without fertile environment and care they appear nothing more than ordinary seeds. However, the packs vary in shape as well as the external lithograph decoration, indicating that each plant is not a mere copy, but a unique being within itself. In addition to the seed packs, the plantimal is also accompanied by the sculpture *Singularis* derived from the creation of Edunia. Specifically, it has the form of the invented protein composed of both human and plant parts. Kac writes that the sculpture “pairs the ephemeral quality of the living organism” with the sculpture’s permanence (“Natural History”). The protein immortalized in the larger than life statue displayed outside a gallery is unique and also permanent since any Edunia will contain and express Kac’s DNA. In contrast, an individual Edunia must be cared for and, even given this care, its singular being is sure to pass away. Kac may be indicating by the sculpture that Edunia is just as artificially constructed as *Singularis*; alternately, we could see *Singularis* as indicating that without its context, including the environment that allows it to flourish, the protein itself is useless.⁶

Finally, as in the *GFP Bunny* series, Edunia is accompanied by an ambiguous signifying system, except instead of lithographs, Kac has used watercolors, “which oscillate between evoking biomorphic patterns and sign systems” (“Natural History”). The watercolors employ a lot of red, linking them to the blood red color of the veins of the Edunia as well as suggesting ideographic forms of writing. The title of the

⁶ I read both of these as serving a similar purpose to the work *Transcription Jewels* (2001), which followed Kac’s *Genesis* (1999) series. One “jewel” is a gold cast of the invented *Genesis* protein, paralleling “History’s” *Singularis*, the other “jewel” is a “genie” bottle that contains purified *Genesis* DNA. Both of these jewels are an “ironic commentary on the process of the commodification of the most minute aspects of life” (*Telepresence* 257). The “gene” is figured as the new “genie,” the new “panacea” that would allow humans to finally master and possess nature.

watercolors, “Mysterium Magnum,” translates as “great mystery,” but which is also the title of one of Jacob Boehme’s mystical and theological Christian texts. The subtitle to Boehme’s book is “The First book of Moses called Genesis.” Thus, the title serves as a counterpoint to the title of the series: a “Natural History” of the enigma, and also refers back to Kac’s first transgenic artwork, *Genesis*. In *Genesis*, Kac translated the passage “Let Man have dominion over the fish of the sea and over the fowl of the air and over every living thing that moves upon earth,” into Morse code, and then translated this sentence into genetic code and made into a gene, which Kac placed into bacteria. Kac allows anyone in the world that has access to the internet, at any time, to shine a UV light onto the bacteria, which disrupts and mutates the genes. If the viewer clicks, it means that he or she “do[es] not accept its meaning in the form we inherited it and that new meanings emerge as we seek to change it” (*Telepresence* 251-52). The clicking of a mouse is at once a real ethical decision (should I mutate bacteria?) and a symbolic gesture (do I accept the word of God as law?). In this sense, we can read the “The Natural History of the Enigma” as part of an ongoing response to this former project. Once we engineer a truly part human, part plant entity, how could we refer back to this decree? As part human being, we cannot dominate it, and yet to a certain extent it is even closer to a mere plant than an animal. What responsibility do we have to such a being?

Although Eduardo Kac has told me personally that he does not use the label “posthuman” to describe his work because it continues to see the “human” as a starting point, Kac’s attitude toward the questions of the nonhuman/human and artificial/natural boundaries fits into the discourse of critical posthumanism and the practice of creative

posthumanism. He disrupts the humanistic assumption that vision will allow us to *resolve* the enigma of life because the enigma continues to change as we interact with the world and it interacts with us.

Posthuman Evolutionary Architectures: Stelarc

Up to this point, I have discussed artists who manipulate bodily material that cannot be mistaken for human. These works offer visions of other forms of life beyond the human, even incorporating human material, while still visibly lacking anthropomorphic form. What happens, then, when a bio artist takes himself, or at least, as Stelarc would put it, “the body” as their medium? Perhaps even more so than the other artists I have discussed, such manipulations of the human body figures into decisions concerning potential posthuman states: new evolutionary architectures for the always already becoming body.

There are a variety of theoretical frameworks under which Stelarc’s projects have been subsumed. Andy Clark, for instance, in his *Natural-Born Cyborgs*, tells us that Stelarc’s *Third Hand*, a prosthetic hand that Stelarc learns to control by moving other muscles connected to its performance, is evidence of the “capacity of the human brain to learn new modes of controlling action,” but stops short of the more radical projects Stelarc performs by his suggestion that Stelarc’s control of his *Third Hand* is not *essentially* different from the way a normal brain might control a bodily member (Clark 122). Furthermore, for Clark, Stelarc’s prosthesis does not fundamentally alter the conception of the human self. Drawing on the work of Daniel Dennett, Clark argues that this understanding does not challenge Stelarc’s sense of self because he learns to control it just like any other limb. Clark argues that such extension technologies “should not be thought of as rendering us in any way post-human,” because humans are

“naturally” wired to be transformed in this way. By naturalizing such transformations, we guarantee that we will still ultimately *control* these extended capacities as sovereign human subjects.

However, if we interpret Stelarc’s work only as extending our capacities while leaving what Clark calls the “narrative self” intact, then Stelarc fails to set himself apart from other body modifications that have been taking place for centuries. Stelarc’s early work, which on its most literal level, consists of hook suspensions of “the body,” invites this interpretation. But this limited understanding of his work risks incorporating it into a relatively new movement attributed to Lepht Anonym, who is also a kind of “biohacker,” but instead of ‘hacking’ the genome at a molecular level, she hacks at her body with a knife and implants technology subdermally. In a 2010 article in *Wired*, Anonym’s work is referred to as “DIY transhumanism,” or “grinding” (Borland). Anonym does not associate herself with the transhumanism of Ray Kurzweil and Hans Moravec, stating “[t]he existing transhumanist movement is lame. It’s nano everything. It’s just ideas [. . .] Anyone can do this. This is kitchen stuff” (qtd. in Borland). While she may be correct in her assessment of the existing transhumanist movement, this “practical transhumanism” still maintains its separation from the challenges of Stelarc’s critical and creative posthumanism. Rachel Marone, for instance, situates Anonym’s work as a radical instantiation of body modifiers’ attempts to create themselves in their own image, becoming our own “biological designers” (“Becoming Ourselves”). Marone, like Clark, maintains that we are not “losing” or “transcending” our humanity because “wanting to go beyond ourselves is a very human quality” (“Becoming Ourselves”). For all Marone’s rhetoric, Anonym is incredibly modest about her practices. As Borland puts it, she is

driven by “consuming curiosity” rather than “philosophical creed.” The gist of her lecture at the 27th Chaos Communication Congress is that anyone can do what she does without money or special equipment. In the video of the lecture, the viewer may notice that she has tattoos and piercings, but the sensory extension modifications remain invisible. The invisibility of the modification suggests that while many body modifications, including tattoos and piercings, can be considered “art,” Anonym does not aspire to such a status.

Up to a point, Stelarc and Anonym’s shared desire to actually *perform* modified sensory extensions link their projects. Just as Anonym is dissatisfied with the current transhumanist movement’s obsessions with philosophical ideas at the expense of practical transformations, so Stelarc states outright that his “ideas are authenticated only by actions” (“Animating Bodies” 216). But Anonym is arguably not actuating ideas, but exercising her open curiosity. If transhumanism brings too much theoretical baggage, Anonym’s does not have enough: she practices without theory. Stelarc’s projects, in contrast, are intimately tied to theoretical concepts. In fact, Brian Massumi argues that Stelarc’s body is “a medium as a *sensible concept*” (“Alchemy of Reason” 126). For Massumi, then, Stelarc’s ideas come into being only through the performance.

These embodied ideas produce an effect in the audience, an effect that requires extensive collaboration and planning. For example, *Stomach Sculpture*, a work in which Stelarc constructed a camera that travelled through his esophagus into his stomach, called for collaboration with a jeweler and a microsurgery instrument maker (“Animating Bodies” 216). Massumi argues that Stelarc’s careful engineering of his performance is an application of “instrumental reason in such a way to suspend need and utility”

("Alchemy of Reason" 134). Stelarc's work may require extensive technical skill, but not in order to *solve* a particular problem. This latter possibility worries Eugene Thacker, who is concerned that BioArt may offer technical solutions to social and cultural problems. On the contrary, Massumi argues that if anything, the problem posed by Stelarc's performances can only be *exhausted* ("Alchemy of Reason" 141). Problems are tested through the application of "instrumental reason" in the service of what Massumi calls operative reason, reason concerned with *effects* rather than causes. Operative reason is guided in every case by a pragmatic sense of the situation's responsiveness, inseparable from the process of trial and error, it "tweaks" and "prods" in order to produce a larger transformation ("Alchemy of Reason" 156). We can understand this "larger transformation," to a certain extent, as the posthuman. Massumi writes, "[w]hat is important is not the fantastic solution cases themselves but the new and compelling *problem* their speculation poses [. . .] Can humanity tweak itself into a new existence? ("Alchemy of Reason" 173). His performances remain "impossible possibilities," speculations that give us a glimpse into possible worlds, because whether or not we take up these possibilities of transformation will come from a collective desire rather than individual will.⁷

Still, Massumi speculates on the "posthumanizing" implications of Stelarc's work. Massumi argues that *the* posthumanizing operation is the body's fractilization, becoming both subject and object. However, whereas in normal "human mode" we understand the body as subject for us and object for others, the fractilization of the body implies that the body is both subject and object *for itself*: the body becomes a *self-network* of multiple

⁷ We note here a similarity to Catts and Zurr's rhetoric of "contestable futures"

agencies in which the “normal” human mode of voluntary action is but one part. Thus, our “normal” human agency becomes one among many and the body becomes one node in the network of matter. But far from further separating us from the rest of the matter of the world, it intimately connects us with it. Massumi writes,

The extension into the posthuman is thus a bringing to full expression of a prehumanity *of* the human. It is the limit-expression of *what the human shares with everything that it is not*: a bringing out of his *inclusion* in matter, its *belonging* in the same self-referential material world in which every being unfolds.

We can perhaps better understand Massumi’s point by considering one of Stelarc’s works in progress. In a statement commenting on *Ear on Arm*, Stelarc writes that “[c]ertainly what becomes important now is not merely the body’s identity, but its connectivity; not its mobility or location but its interface” (“Ear on Arm”). Stelarc is in the process of inserting an ear on his left arm, an ear that he hopes will not only listen but also transmit sound through the insertion of a microphone. The surgery was a success as the ear transmitted the surgeon’s voice, but the microphone had to be removed due to an infection. The next step is to reinsert the microphone with the goal of functioning as a remote listening device for people in different locations. Stelarc also raises the possibility that the extra ear could become a “part of an extended and distributed Bluetooth system,” calling the *Ear on Arm* an “Internet organ for the body” (Stelarc website). Such a system would allow him to talk to people through his ear and receive the other person’s calls in his mouth, so that, if he opened his mouth while on the phone with another person, the other person’s voice would come out of his mouth. The body

then, becomes a node in a complex network of linked beings rather than a discrete, definable identity.

But even though this project has not yet succeeded, and even though the posthuman evolutionary architectures that Stelarc has invented remain in the aesthetic staging of these possibilities, for Massumi, this is beside the point: “The Stelarcian desire is to *affirm* the conversion, not to denigrate the importance of the human-justice issues that it incontestably raises but rather to enable them to be reposed and operated on in an entire new problematic” (“Alchemy of Reason” 184). For all of his careful parsing of theoretical terminology, Massumi leaves us with a rather reductive either/or choice of desires: “affirmed exhuman intensity and all-too-human moralism” (“Alchemy of Reason” 184). The most generous reading of this dichotomy is an affirmation that we have already begun a transformation toward the posthuman. Stelarc’s statement that the “body is obsolete” is merely stating, as Massumi explains, “the body is always already obsolete, has been obsolete an infinity of times, and will be obsolete countless more—as many times as there are adaptations and inventions. *The body’s obsolescence is the condition of change*” (“Alchemy of Reason” 152).

However, as Amelia Jones points out, we have to confront the seemingly masculinist, transcendent rhetoric of Stelarc’s performances, even if, as she concludes, we admit that far from his rhetoric of the hard, dry, and hollow body, his performances reaffirm our wet, vulnerable flesh. Despite her constant hedging of her argument, reassuring her reader that she is aware of the complexity of Stelarc’s work, she still argues that, from an identity politics point of view, we must confront his rhetoric of masculine desire and transcendence. She may read Stelarc against his rhetorical grain,

but her essay in the final instance reads as a warning or a disclaimer for Stelarc's work—a cautionary tale. She articulates these concerns through comparing Stelarc's work with other artists more explicitly addressing gender issues, which may or may not concern Stelarc. Nicholas Zurrbrugg, for instance, cites a 1994 interview where Stelarc says, “[w]hat’s interesting is alternative aesthetics and speculative ideas. I guess that’s why gender issues irritate me because they represent social and political agendas that I’ve intentionally never been a part of” (qtd. in Zurrbrugg). Jones rightly points out that, in reference to his early suspension works, “imagining a white, middle class feminist or a working-class black lesbian who would perpetrate such violence on her body is difficult” (“Stelarc’s Wet Body”). Although Jones sees Stelarc’s elision of the *particularity* and *specificity* of bodies as problematic, she still finds empowering hope in Stelarc’s call for articulating new desires, new ways to integrate and interface with the world (“Stelarc’s Wet Body” 117).

Jones’ suspicion that we should read Stelarc “against” himself and that his performances tend to force us to question the rhetoric is confirmed by Stelarc’s own statements. In an interview with Ross Farnell, Stelarc says, “Is it too much to insist on a reading of these performances without that strategy of categorization? Can one evaluate that action *beginning* with the performance rather than *ending* with the performance?” (141). Jane Goodall agrees that cultural critical interpretations of the performances make the mistake of reading the performances through his rhetoric rather than vice versa (167). Stelarc is frequently forced to clarify his rhetoric in interviews and talks. For example, when he says that the body is “hollow,” he is not referring to either a literal empty body without organs, nor a kind of existential anxiety as Jones interprets it:

“Stelarc’s rhetorically defined ‘hollow body,’ then, seems to point to his anxieties about his own potential nothingness, emptiness, and mortality” (108). Although she correctly understands that the *Hollow Body* performance itself reveals the hollowness of the rhetoric, she replaces this rhetoric with a psychologization of Stelarc’s state of mind, even though he has explicitly stated that he is not interested in psychology.⁸ She continues this line of thought, glossing Stelarc’s claim that there will “technically be no birth,” as his desire to replace the anatomical female body in sex and procreation. While this is an interesting reading, in his University of Warwick lecture, “Circulating Flesh: The Cadaver, The Comatose, and the Chimera,” he points to the possibility that a “skin cell from a female body can now be engineered into a sperm cell. So, males are out of the reproductive loop in the near future.” More importantly, echoing her early claims about Stelarc’s anxiety over his own mortality, she claims that his proclamation that once the body is “redesigned in a modular fashion to facilitate the replacement of malfunctioning parts, then TECHNICALLY THERE WOULD BE NO REASON FOR DEATH. . . Death does not authentic existence” lets the cat of the bag: “all of these proclamations are really, then, about escaping death itself” (“Stelarc’s Wet Body” 116). Jones reveals her misunderstanding of Stelarc’s term “the body,” when she claims that she clings to “her embodiment” as proof of her aliveness and asks rhetorically “what would be the point of consciousness if there were no death?” (“Stelarc’s Wet Body” 117). Stelarc is *not* denying the necessity of *embodiment*, but rather the necessity that this particular embodiment is always already obsolete, as Massumi suggests. Thus, far

⁸ Jane Goodall argues that Stelarc shows “no great interest in the cultural implications of what he is doing” even if he takes up their “signifiers and vocabulary, such as the cyborg and the zombie he refuses the “psychological baggage” that accompanies them. By transferring these signifiers from psychology to an “entirely physical, material version of possession” he defuses their power (“Will to Evolve” 13-14).

from showing that Stelarc returns us to a “perverse humanism,” it is Jones who returns us to an essentially humanist framework with her insistence that, indeed, death *is* what authenticates human existence.⁹

The issue of life and death returns us to a core issue at the heart of transhumanism, if not posthumanism: *Can we Live Forever?* I place the question in italics because I want to return to the NovaScienceNow video discussed in the previous section. One of Stelarc’s works, the *Prosthetic Head*, seems eerily similar to the avatar project in the video, ProjectLifelike, headed by Jason Leigh and colleagues. The video proclaims proudly that the avatar, as an instance of oneself, will “never die,” and frames the project as the potential to upload all of one’s thoughts, feelings, and habits into the virtual avatar; once dead, people will be able to interact with the person as if he or she was in the room. Degrasse Tyson’s voiceover also implies that we could do this with historical figures and celebrities, which suggests potential educational use. The goal would be to mimic and thus represent the behaviors and thoughts of the particular human being.

As in the segment in artificial organs, this desire is also framed by science fiction references, not for a convenient analogy, but because Leigh’s ideas, according to the video, were motivated by *Star Trek* and *Superman*. Leigh even draws an analogy

⁹ Although Jones’ reading is valid, I think it is necessary to look closely at the statement: he says there would be no *reason* for death, not that there *would be* (or will be) no death. Stelarc is clearly talking about a particular concept of death: Heidegger’s. In a recent interview, Stelarc says “Heidegger authenticates life with death. But birth and death might be the outmoded means for shuffling genetic material and for population control” (“Animating Bodies” 228). Heidegger’s argument is that human beings have a relationship with death *as such* whereas an animal merely “perishes.” Jacques Derrida brilliantly has critiqued this notion of death *as such* in *Aporias*, arguing that we do not have any privileged relationship with death. We might think about Stelarc’s birth and death statement in this sense rather than as an elimination of death based on the fear of dying. Whatever state we end up in if life ceases to be authenticated by ‘death’ will not resemble the transhumanist escape into the ether nor the traditional human subject, but as a kind of machine/human hybrid, a cyborg.

between what he is doing and the spirit-knowledge tree in the recent film *Avatar*. “The most interesting notion about it was when these people passed on, their knowledge is absorbed into this tree of past knowledge and I thought aha! That’s what we are trying to do” (*Live Forever*). While he makes this sound like a new and profound goal, he does not realize that we already do precisely this through writing and other archiving mechanisms. The only argument one can make for the superiority of the creation of an avatar is if we resort to identifying the avatar’s answers as representing the “true” self, opinions, thoughts, and answers of this particular person. True, the avatar would be able to interact with us using nonverbal cues in ways that books or films cannot, but if the goal is to argue that the creation of these avatars would produce a more “authentic” account of our collective knowledge, then very little is added.

In contrast to Leigh’s science fiction fantasies, Stelarc admits in conversation with Liz Carr, “--“I’m not interested in speculating in any sci-fi way, I’m interested in constructing an interface, experiencing it directly, and thereby able to meaningfully articulate about those” (Carr). In other words, his work is not a utopian vision for all of humanity, but a provocative probe for further thinking. Parallel to Leigh’s project, but with profoundly different motivations, the *Prosthetic Head* is an “automated, animated, and reasonably intelligent artificial head that speaks to the person interrogating it” that “somewhat resembles the artist” (“Prosthetic Head”). According to his lecture at the University of Warwick, the work was motivated by two philosopher’s assertions. First, Nietzsche’s claim in the *Genealogy of Morals*: “the doer is merely a fiction of the deed—the deed is everything” and second Ludwig Wittgenstein: “If again we talk about the locality where thinking takes place we have a right to say that this locality is the paper

on which we write or the mouth which speaks” (qtd. in “Circulating Flesh”). Thus, the idea that the head corresponds to a self behind the avatar or, alternately, that Stelarc is hoping that his uniqueness is embedded into the head would be a misinterpretation. This is not Stelarc’s attempt at living forever. Furthermore, despite the head’s “disembodiment,” Stelarc makes it clear that it is *not* “an illustration of disembodied intelligence” (“Prosthetic Head”). In contrast to the video’s framing of Leigh’s project, which is to mimic and represent himself in such a way that he can *identify* with his avatar, Stelarc claims that as the head increases its database, it will become “more autonomous in its responses” and thus “the artist would then no longer be able take full responsibility for what the head says” (“Prosthetic Head”).

Although the head looks uncannily like Stelarc and although it is “reasonably” intelligent, there are decisions that the artist either made or was forced to make due to the technological limitations that question one of Stelarc’s more radical claims: “the realm of the posthuman may not be in the realm of bodies and machines, but rather in the realm of autonomous and intelligent images [. . .] images are immortal. Avatars have no organs. Have no organs.” (“Stelarc’s Prosthetic Head”). Actually, to be more precise, it is the “prosthetic head” that utters these words. This observation should give us pause given the comment that the artist may not be able to take responsibility for what the head says. If we are to take Stelarc seriously when he says that his projects do not give up *embodiment*, then we have to think about the limits of these avatar projects.¹⁰ For one, the prosthetic head is just a head and thus is already marked as different from human beings through its lack of a torso, arms, and legs. Secondly, the head’s

¹⁰ Even though, as he notes in an interview, “the *Prosthetic Head* is massively embodied with all the technology that is required to present and operate it effectively” (“Animating Bodies” 231).

movement is jerky, which contradicts the head's statement that "electronic images are ethereal and perform smoothly at the speed of light" ("Stelarc's Prosthetic Head"). Thirdly, the head's voice is grainy, machinic, and very uncomfortable to listen to, sounding nothing like Stelarc's enjoyable Australian lilt. Finally, although it is true that this is just a video of the head, the head repeats "have no organs" as if it mis-fired or got stuck like a record player. Given these differences, Stelarc's project is not a representation nor an "instance" of himself, but, in the same way that his *Third Arm*, or *Exoskeleton* is, a prosthesis at least partially out of his control. It is a split body itself as Stelarc says to those in attendance at his lecture, "it has a schizoid personality – sometimes it asserts itself as an automaton sometimes it thinks it's the artist" ("Circulating Flesh").¹¹

¹¹ And furthermore, we should note, that despite the promissory, prophetic, and hyperbolic rhetoric of PBS's *Can we Live Forever*, Jason Leigh's team have also encountered limitations in their projects. In their academic paper, "Designing an Expressive Avatar as a Real Person," Leigh et. al. attempt a kind of emotional Turing test for their avatar. The goal stated here, as opposed to the PBS video, is not as a repository of the self, but rather an accurate simulation of Ekman's six classic emotions. The study's experiments found that while "happiness and sadness are identified with a high degree of accuracy [. . .] the other four emotions [anger, disgust, fear, and surprise] showed mixed results" (Lee et. al.).

CHAPTER 3 CONCLUSION: THE FAILURE OF BIOART

To suggest that BioArt is a failure is not equivalent to suggesting that these artists' works fail to engage us in a unique and meaningful way. Rather, it is to point out that if biotechnological discourse is characterized by utopian visions of mastering nature to such an extent that we can live in a peaceful, non-violent relationship with other humans and nonhumans, then Bio art is not a dystopian, luddite reaction to biotechnology, but a critical engagement with its limitations and its long-term goals and a practice that imagines alternative uses for biotechnology that construct contestable futures. BioArt succeeds because it fails only as a result of the unpredictability of life, a point of supreme interest for all BioArtists. Indeed, both Stelarc and Oron Catts have referred to their works as failures in a positive light. In a recent interview Stelarc says, "Another way to characterize what I do and how I do it is to say that I've made a career out of being a failure. None of the projects and performances can be said to have been successfully realized—at least the way I'd imagined them at first [laughs]" ("Animating Bodies" 216). Catts, in a recent interview in the *Urban Times*, celebrates the MOMA instantiation of *Victimless Leather* as a failure: "I think those types of failures are the most important part of the work because we are never going to engage with life and have full control over it" ("Interview"). Although not explicitly referred to as a failure, we could argue that Eduardo Kac's *GFP Bunny* project "failed" in a way that was unexpected due to Alba's remaining captivity, although it is equally possible that she will be released in the future, that she will remain there until she dies, or that she is already dead.

It is the relinquishment of absolute control and the affirmation of unpredictable consequences that makes BioArt interesting as a practice and a worthwhile object of study. Stelarc has said that “unless art can generate the unexpected, can generate ambivalence and uncertainty that destabilizes our comfortable paradigms,” chances are it will not be interesting or have value as art. Despite all of our attempts to resolve the question of life, to make it absolutely visible and transparent, so as to control its outcome through genetic engineering, tissue engineering, prosthetics, disembodied avatars, etc., these artists resist this arrogance, and implicitly argue that we have to encounter, interact with, and adapt to our environment, including other forms of life. Bioart’s posthumanism, then, stems from its critical and creative commitment to questioning the human and the nonhuman, the natural and the artificial, the living and the – semi-living. It fails-succeeds in its inability to resolve life into easily fit categories that we can appropriate and dominate. Along with Catts, we should celebrate this failure as an attempt to imagine new posthuman terms that takes seriously the complex ecology of life.

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