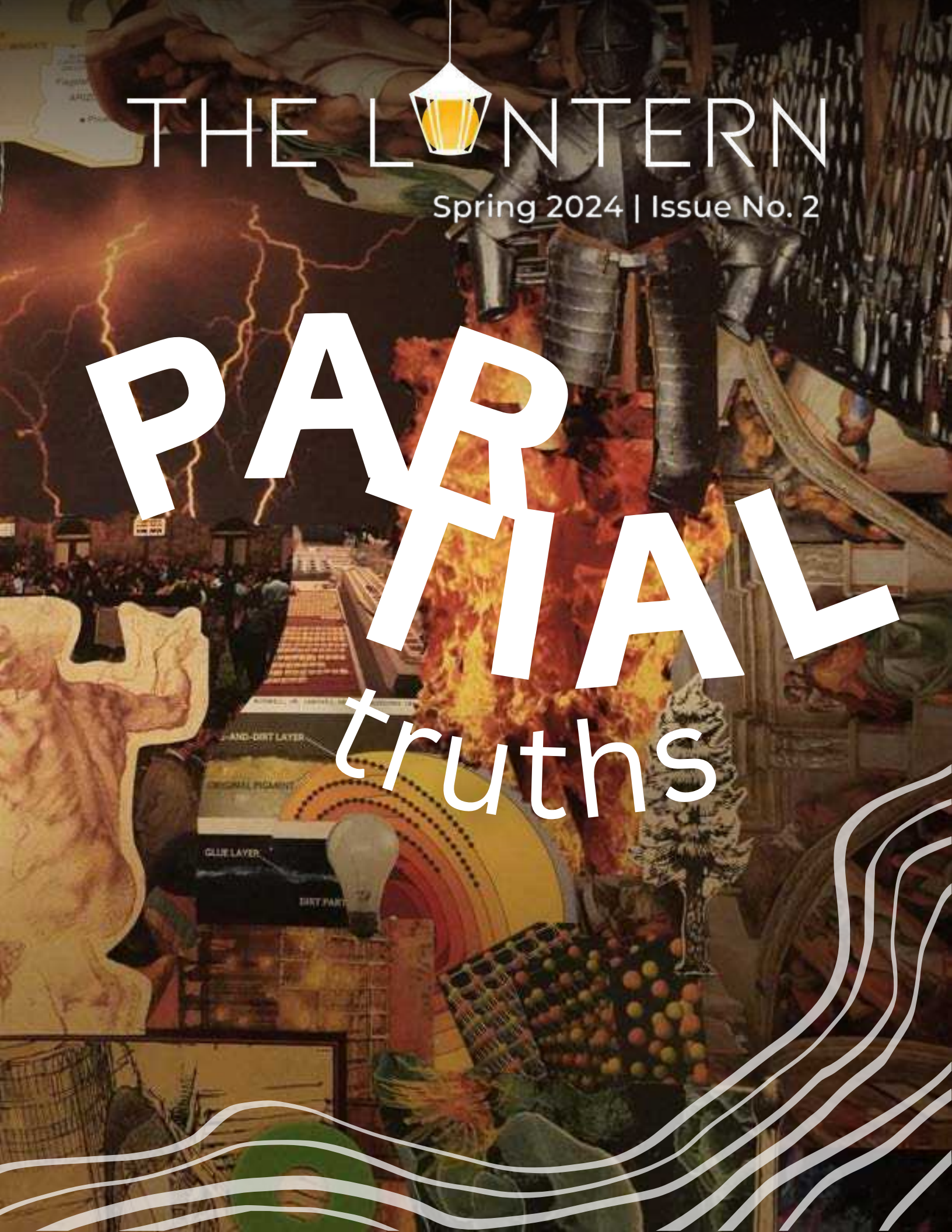
THE LANTERN
Spring 2024 | Issue No. 2
PARTIAL
truths
GLUE LAYER

A LETTER FROM THE EDITOR

Dear Reader,

We are The Lantern Think Tank. Dedicated to Science, Technology, and Society (STS) studies, we work to synthesize research, discussions, and student-led explorations of STS into an annual publication.

As often as our role has changed these past few years, so have our offerings to the Tufts interdisciplinary community. This year saw the revisiting of a debate on academic uses of Artificial Intelligence, creative workshops, film screenings, and a special lecture from Professor Nick Seaver, STS Department Chair. While our premiere issue, "DEFINE," centered on opening the black box of STS, this issue embraces the fractal boundaries of this cyborgian field.

As we navigate the nuanced perspectives within these pages, a diverse capacity of STS topics are dissected through student writing in a range of genres. Two pieces, a documentary analysis examining photographic "objectivity" for mass surveillance and a blog post about a scientific race to the top sit in dialogue with one another regarding responsible uses of technology. Visual analysis and an op-ed showcase the intersections and tensions found between the arts, sciences, and humanities. And, a fictional short story and mixed-media collage question perceptions of reality, identity, and nature. We have paired these pieces with several quotes from Donna Haraway—a pivotal, feminist STS scholar—on page four (4) for a richer introduction to where our theory-informed notions of partiality come from.

With great pride, we invite you to embrace our creative bending of an academic magazine in this second issue of *The Lantern*, "PARTIAL TRUTHS." Thank you to the Tisch College of Civic Life for making this issue possible, the endlessly supportive Tufts STS Department, our passionate alumni, the wonderful authors who brought life and electric animacy to these pages, and our tireless executive board.

Truthfully Yours,

Nika Lea Tomicic

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Zoe Coyle

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Aden Malone
Andrew E. Lawrence
Kevin Pham
Maddie Cortesi
Newt Gordon-Rein
Nika Lea Tomicic

EDITORS

Nika Lea Tomicic
Sam Lacet-Brown

DESIGNERS

Maddie Cortesi
Clara Davis

WHO WE ARE

The Lantern is a student-run, interdisciplinary think tank and magazine publication that investigates the social impact of science and technology to advocate for responsible innovation. The Lantern was founded in 2021 at Tufts University.

As a "Think-and-Action" Tank, The Lantern has a dual mission: (1) to break down critical and complex ideas at the intersection of STS (Science, Technology, & Society) for the general public; and (2) to engage students and organizations in a socially responsible path of science and technology.

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Percolate on PARTIAL TRUTHS in the words of feminist theorist & foundational STS scholar Donna Haraway. These quotes are derived from her pivotal writings: "Situated Knowledges" and "Cyborg Manifesto," and presented in tandem with this issue's student works.

"There is no unmediated photograph or passive camera obscura in scientific accounts of bodies and machines; there are only highly specific visual possibilities, each with a wonderfully detailed, active, partial way of organizing worlds"

"We seek those ruled by partial sight and limited voice-not partiality for its own sake but, rather, for the sake of the connections and unexpected openings situated knowledges make possible"

"What money does in the exchange orders of capitalism, reductionism does in the powerful mental orders of global sciences"

"Knowledge potent for constructing worlds less organized by axes of domination"

"There is no drive in cyborgs to produce total theory, but there is an intimate experience of boundaries, their construction and deconstruction"

Artist: Maddie Cortesi

Haraway, Donna (1988). "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14 (3):575-599.

Haraway, Donna J. "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century." *Simians, Cyborgs, and Women: The Reinvention of Nature*, Routledge, 1991, pp. 149–181.

Beyond the Frame of Our Lives: *All Light, Everywhere*, Surveillance, and the Illusion of Objectivity

Andrew E. Lawrence

All Light, Everywhere *is a 2021 documentary that explores the objectivity of reality. The film primarily follows the evolution of the camera as an instrument of surveillance by interviewing the organizations and communities that develop and interact with surveillance technologies. In this documentary analysis, I will examine how the technologies presented — namely police body cameras and monitoring software — define and distort realities, then argue against their widespread application.*

"Every image has a frame"

To many, a photograph represents a fact — what you see in the image is, undeniably, what was in front of the camera when the photo was taken. However, this is not always the case. Rather, the image is both a product of the tool used to capture it and the frame of reference developed by the observer. In *All Light, Everywhere* this equation is best explained through the experiments conducted by the 19th-century French scientist and photographer, Étienne-Jules Marey. Marey attempted to transform natural motions in our world into a series of photographs and then data points. However, the "natural" basis of his experiments never existed where the photos were shot; he manufactured the studio conditions, floor, and specific movements. [1] Consequently, Marey's actions demonstrate that the author of each image plays an important role in determining the outcome of the image. To further highlight this, I look towards British photographer Ben Smart who captured the same tree from similar perspectives with three different types of film.[3] Each image posits a certain objectivity — the tree exists at that location and the conditions surrounding it at that time did occur.

Artist: Kayla Drum

Artist: Kayla Drum

Yet, changes to the composition of the photo, like the position of the camera or the film used, dramatically alter how one views the tree and its surroundings. Is the black-and-white photo not spookier than the others? These alterations transform its casual objectivity. Through Marey and Smart's series of images, we can see that there is no true objectivity in observation, rather what we see is a reflection of the choices made leading up to the act of observing.

"More than what the officer can see"

Like the images on page eight (8), the footage taken from a body-worn camera (BWC) is seemingly objective: it records police-civilian interactions that are automatically uploaded to a tamper-evident secure database. Yet, designed and implemented within these cameras are a series of practices that reproduce bias and stray far from objectivity. Although BWCs differ in functionality between models, Axon Enterprises, formerly TASER International, controlled roughly 70% of the market in 2021.[2] By zooming in on Axon as the dominant force in the industry, we can analyze how the majority of Americans interact with BWCs. In *All Light, Everywhere*, director Theo Anthony interviews Steve Tuttle, the Principal and Former VP of Strategic Communications at Axon, about their BWC. In the film, Tuttle presents the design choices and policies that went into developing the camera. After introducing the BWC, Tuttle immediately presents one of its most problematic aspects: the cameras are deliberately engineered so that they only capture the officer's tailored point of view.[1] Tuttle defends this choice by highlighting how in "court cases, the officer's view is key" and so you don't want to "jade the jury" by giving them "more than what the officer can see."[1] Initially, this seems to make sense. Yet, after reflection, the underlying implication of this statement becomes clear: Axon controls what the jury sees. With its technology, Axon defines our reality. Thus, the power of interpretation is removed from our justice system and placed into the care of a private corporation. What remains is still plagued with misrepresentation. While Tuttle ensures the camera's portrayal accurately parallels what the human eye could have seen, among other issues, the corporation's BWCs have been shown to distort movement, making actions seem more erratic and intense.[1]

This intervention ultimately benefits the officer wearing the camera as it suggests those that they were interacting with can be perceived as erratic. Consequently, a seemingly objective video becomes the culmination of alterations to the actual event. Axon's tagline for their Axon Body is "See truth in the moment" — but what truth exists in constructed images?

"God's eye view"

Even if certain design choices did not skew an officer's body-worn camera to favor the wearer, their use, and that of surveillance technology in general, is ultimately unethical. Looking beyond BWCs and toward mass surveillance systems can highlight this. In *All Light, Everywhere*, the documentary introduces Ross McNutt, CEO & Founder of Persistent Surveillance Systems (PSS). PSS is a private security firm that specializes in constant mass surveillance via a plane equipped with 12 cameras that take a photo every second of every day of entire cities.[1] This "God's eye view," as coined by McNutt, enables the organization contracting PSS to monitor every aspect of the public lives of the civilians beneath the plane.[1] In the case presented during the documentary, the Baltimore Police Department (BPD) used the plane to gather footage of the city without the knowledge or consent of the Baltimore Mayor or any civilians. While this obviously represents a serious violation of privacy, even if the BPD informed citizens, the use of the plane would still be unethical. *All Light, Everywhere* has shown us that any form of observation contains some bias and some frame that distorts the reality presented to us. This axiom prevails no matter the system and context of observation. In simple contexts — such as snapping a photo of our friend or our dinner — it matters little. However, when the prosecution of entire populations hinges on it, the consequences are incredibly problematic. Persistent Surveillance Systems imposed limitations of observation onto their tools. Thus, the BPD cannot claim that their footage is objective evidence.

Image Credit: Ben Smart

No matter the organization, however, surveillance systems ultimately reproduce the biases and frames of observation of their creators and thus are not reliable sources of information. Consequently, their continued use is unethical.

From quantum physics to the tree at our local park, the objectivity of what we observe through tools of our creation has always been in question. Yet, when the goals of observation go beyond simple exploration of our reality, the limitations of objectivity are severely damaging. Extinguishing the power of a nuanced perspective, the mass surveillance of cities and civilians mistakes objectivity as a simple truth that guarantees justice. ■

Image Credit: Ben Smart

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[1] Anthony, Theo, director. *All Light, Everywhere.* Sandbox Films (II), 2021. https://www.kanopy.com/en/tufts/video/12333392.

[2] Goldsmith, Eloise. "Profiting from Police Reform: Can the Feds Break up Axon's Body Camera Monopoly?" *WhoWhatWhy*, 26 Aug. 2021, whowhatwhy.org/justice/criminal-justice/profiting-on-police-reform-can-the-feds-break-up-axons-body-camera-monopoly/. Accessed November 22, 2023

[3] Smart, Ben. "Lomography - the Same Three: Shooting the Same Scene with Different Cameras." *The Same Three: Shooting the Same Scene with Different Cameras*, Lomography, 10 May 2012, www.lomography.com/magazine/175997-the-same-three-shooting-the-same-scene-with-different-cameras. Accessed November 22, 2023.

[4] Stanley, Jay, and Peter Bibring. "Should Officers Be Permitted to View Body Camera Footage Before Writing Their Reports?" *American Civil Liberties Union*, 13 Jan. 2015, www.aclu.org/news/national-security/should-officers-be-permitted-view-body-camera-footage-writing-their-reports. Accessed November 22, 2023.

Fogged Thinking

Newt Gordon-Rein

Fujiko Nakaya has created a sculpture that you see, breathe, feel on your skin, and shape as you move. *Munich Fog (Wave) #10865/I* was part of Nebel Leben, a summer 2022 exhibit at Munich's Haus Der Kunst. "Nebel Leben" can be roughly translated as "live in fog" or "mists are home,"[1] which speaks to the level of immersion that Nakaya aims for in her work. In the main atrium of the exhibit, ambient daylight peers through a lattice of skylights, lending form to the opaque mist which rose from spigots hidden near the floor in the massive gallery. The floor itself—some 500 square meters of space—was dominated by pools of dark, glossy water bordered and cut through with angular wooden walkways. Everything in the room, from the temperature to the soft blue and gray color palette to gentle piped in music, felt nurturing. The fog was not kept at a constant elevation. Rather, it would spout up to cover the heads of everyone in the room, subsuming all its observers, then dissipate slowly, until the low cloudlets were molded entirely by the passage of the visitors.

The interaction of human and nonhuman construction in *Munich Fog (Wave) #10865/I* work to make participants more aware of their relationship to nature. Most of Nakaya's fog sculptures are situated outside, emphasizing nature's role in manufacturing the form of the work alongside the modifications of moving observers.[2] Critic Yuji Sone describes Nakaya's work in terms of demonstrative theater.

According to Sone, Nakaya connects human culture with natural systems through the medium of the body; this concept "becomes accessible paradoxically through the very artificiality of a natural environment that is experienced by and materialised within the human spectator."[3] In fact, another piece of Nebel Leben was one such work, positioned through an open door on the far side of the main atrium, which connects *Munich Fog (Wave) #10865/I* to Nakaya's more canonical work while keeping it essentially separate.[4]

NOTES

[1] Reverso, accessed October 12, 2022, https://www.reverso.net/text-translation#sl=ger&tl=eng&text=nebel%2520leben

[2]Nakaya, Fujiko, Anne-Marie Duguet, *Fog = 霧 = Brouillard*, Edited by Anne-Marie Duguet, Paris: Éditions Anarchive, 2012, 7, 36.

Image Credit: Fujiko Nakaya

NOTES

[3] Sone, Yuji, "Fujiko Nakaya's Fog Performance and Embodied 'Nature,'" *Studies in theatre and performance* 39, no. 2 (2019): 173.

[4] Haus Der Kunst, "Fujiko Nakaya. Nebel Leben," accessed 13 October, 2022, https://www.hausderkunst.de/en/exhibitions/fujiko-nakaya-nebel-leben

On one hand, the boxed-in setting of *Munich Fog (Wave) #10865/I* disconnects the work from the level of natural autonomy that Nakaya usually emphasizes, but on the other, it focuses the viewer's attention on their personal interaction with the work. *Munich Fog (Wave) #10865/I* is contained within a museum-standard large white room, but Nakaya disrupts the traditional gallery setting by transforming the floor space. The water has power: despite elevated walkways which make the pools subordinate to viewers, there is always the threat of imbalance, of falling in. As the fog rises, this anxiety increases. The fog and pools are still human-constructed and situated, but this fact is easy to forget when every hard line is obscured by the mist. Nakaya's outdoor works dissolve the binary between human and nonhuman construction by artificially producing fog that is then shaped by the local elements and landscape. In Nebel Leben, she makes this action into a personal experience as a spectator's perception of the work shifts from divisive observation to mildly damp sublimation.

The medium of the work—simple, potable water—is a resource indelibly tied to life. It shapes the living creatures of this Earth as well as the nonliving elements of our world. Nakaya's clouds, and by extension other weather systems, the dirt that turns to mud, the air, are all brought to life by their association with water. The entity of the complete ecosystem, beyond just the organisms, is represented. It is also respected. Using water for art does not negatively disrupt the local ecosystem. Nakaya's nozzles require some power, but water is the main exhaust material from her sculptures. In some cases, her work has even rehabilitated the habitat around permanent installations.[5] Nakaya's fog works reflect the second-wave environmental art movement which, in reaction to early land art that disrupted local ecosystems, "accentuates sustainability, biodiversity, and the question of the use of natural resources in activist ways."[6] Considering this movement, Claudia Mesch criticizes the continued use of "pretty" natural resources and depoliticized artworks which refuse to name major corporations as the perpetrators of environmental damage.[7] *Munich Fog (Wave) #10865/I* certainly falls into this category, seeking to engender personal resonance rather than incite political action. Mesch names garbage art as a more demonstrative and revolutionary art style, but also notes how modern environmental artworks do more to horrify people than stoke the fires of change.[8] Nakaya's interest in fog stems in part from an appreciation of cycles in nature: she wants her work to help people reconnect with ideas of simultaneous creation and dissipation.[9] In other words, her work implies a simultaneous acceptance of death and hope for new life. It strikes a perfect balance between the solemn understanding and active impetus which environmental art strives for.

Munich Fog (Wave) #10865/I is a piece that both stretches and minimizes the mind. Through a disassociation with place and personhood, it connects viewers to the greater ecological world and to fundamental concepts of progress. Concurrently, it brings into focus the direct influence of the individual and how those same grand concepts apply on a personal level. The fog represents a hybrid mode of thinking—an acceptance of simultaneous contrasting binaries such as permanence and ephemerality, influence and autonomy, which can perhaps be a model to envision a new human-nonhuman interface in the ecological world. ■

NOTES

[5] Nakaya, *Fog* = 霧 = Brouillard, 36.

[6] Sone, "Fog Performance and Embodied 'Nature,'" 168-9.

[7] Mesch, Claudia, *Environmental Art, in Art and Politics: A Small History of Art for Social Change Since 1945*, London: I. B. Tauris, 2014, 148.

[8] Mesch, 256.

[9] Nakaya, *Fog* = 霧 = *Brouillard*, 7.

Image Credit: Fujiko Nakaya

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ANOTHER EXPERIENCE

Aden Malone

SYRACUSE — Authorities say that a passenger died after a one-car accident on Thursday night. The Audi was going southbound on Brighton Avenue at around 11:30 p.m. Sources say the car swerved into a telephone pole at about 45 mph, ejecting the driver, who died of his injuries early Friday morning.

Syracuse resident, Kevin Lackard, has long worried about the behavior of student drivers. "These kids speed down this road, blasting music, possibly intoxicated, and obviously distracted. It was only a matter of time before we lost another one."

The driver, Sebastian Tallant, 19, was a sophomore at Syracuse University.

Page Last Updated: 8:14 a.m., April 23, 2038

The Jeep Cherokee slows in the gravel driveway. Asher admires the rotten house, enclosed by pine trees and mossy bedrock. He opens the door and steps out of the car, not yet turning down the music in his head. The air is different here. His family hasn't stayed here in years, and the give of the moldy steps has become more noticeable. He peeks inside, though he knows there will be no furniture, no movement, no life.

Asher skips back down the steps and remembers the music playing—he turns it off. He opens the trunk of the car, pulls out his sneakers, and slips them on. He didn't bring a change of clothes this time, he's already wearing the mesh tank top with matching shorts that he got with his team senior year.

The path looks ready, as it always does, and it's early enough that dew still sits on the grass, but late enough that the birds are preoccupied.

On his phone, Asher opens Neuropedia, presses that blindingly green button, and begins walking.

He hears the back door of the Jeep open and shut as Sam jokingly struggles to catch up with him, barreling like he could fall at any moment. He finally reaches Asher, slapping his back firmly, but not causing any pain.

"Dude, long time no see." He's had this tendency since high school, lengthening already long syllables so his speech sounds almost groovy.

"I know, we really gotta catch up, I've been missing you and the boys."

"Yo, me too. What you been up to?"

"Really nothing man. Work is work. The money is awesome, but trading like that for ten hours a day gets mad boring."

“You got a girl yet?”

Asher glances downwards. The ground is awfully muddy, but not enough to ruin his shoes. The incline here gets more intense, but he’s done enough of these hikes that his breath keeps consistent. He’s 26 now, he probably should be worrying about finding a girlfriend.

“Yeah, nah. I’m just trying to make money and get out of the city first. Then I’ll worry about women.”

“Facts.”

The two walk without conversation for a while. The view from this pass would be breathtaking to any newcomer, and the abundance of life is astounding. Ferns and poison oak and ivies rush along deer trails. The trees are magnificently tall, and their branches cross repeatedly, forming a sort of vertical hive. The sound of the water running is faint but ever-present, and with real notice it’s almost overwhelming.

It has been nine years since Asher touched a lacrosse field, seven for Sam. After high school, Sam continued playing at Syracuse while Asher went to nearby Binghamton, though he was never able to walk onto the team. Sam had always been better, getting invited to showcases and talking to the coaches of powerhouse schools.

At college, Sam continued to thrive on the field. Asher watched every one of his games in the first semester, though that habit waned after he joined a frat. He still met up with Sam when he could, but it seemed like Sam had found his new crew with the lax team, and, honestly, Asher had found his. He doesn’t like thinking about that.

Sam runs up ahead, Ash following at his consistent pace, mostly keeping his head down.

The two approach the summit of the hike. The once faint rush of water is now indeed overwhelming: tons of water crashing into the pool below, then rippling, then contributing to the uniform stream below. The same log has been at the top of the waterfall for weeks now, and Asher and Sam sit on it.

“Man, this view never gets old, does it?” Sam asks.

“Never.”

They take it in for a few year-like minutes. Asher feels like he forgot something.

“Hey, what ever happened to Olivia from freshman year?” He asks.

“She was fun, but obviously it didn’t work out. No idea where she is now.”

Asher saw Olivia on his way to work last month, but he doesn’t tell Sam.

“That’s too bad, it seemed like you guys could’ve worked.”

“Maybe.”

Sam’s response was oddly solemn considering his mood earlier. The two sit on the log for a while longer, looking down at the rock that shapes the waterfall. Sam seems sad, Asher hasn’t noticed that in quite some time.

Suddenly, though, as quickly as Sam went into his slump, he comes back out of it, jumping up off of the log and prancing around Asher.

“Let’s jog it back!” He says excitedly. It seems pretend.

“Maybe, just let me stretch out a bit.” Asher is getting older, this is one of those ways he could tell.

“Nah man, let’s go!” Sam is still jumping and dancing around the log. He starts doing jumping jacks, buttkicks, and other dynamic warmups. He keeps getting closer to the edge of the waterfall with each lap around the log. Sam is never cautious, Asher knows this, but for some reason, he is getting anxious.

He can’t bear to lose him again.
“Sebastian!”

Sam stops. His face is blank. They make uncomfortable eye contact, and the world around them becomes paralyzed.

“Uhh, who’s Sebastian?” says Sam.

Asher feels his face get hot. He rarely makes this mistake. In the years since he uploaded Sebastian's consciousness and likeness as Sam, he has only used the wrong name a few times, but each time it causes this visceral reaction that never seems to dissolve.

The world starts moving again and his heart is still racing. He can't tell whether he's embarrassed or angry or depressed. It doesn't matter.

"Nobody."

He surrenders.

Sam stands vexed as Asher takes his phone out, opens Neuropedia, and presses the shining red button. Sam both melts and disintegrates. It never looks painless when Asher has to end an experience. The feet and shins turn jelly-like and fold into the ground. The upper body just sort of fades out of sight, getting dimmer and dimmer until one can only imagine a silhouette.
The head comes apart into thousands of tiny blue particles and flows upwards in a gust of nonexistent wind. Then there's no one.

This whole process only takes a few seconds, though Asher has seen it enough times to recognize each step. He feels that same panic-induced heat every time.

Eventually, that heat turns to warmth, and his heartbeat returns to normal. It's not too difficult to keep calm in a place like this, overlooking the Catskills that have always impressed him. At least he hasn't lost that.

Asher thumbs the light gray button at the top of the screen labeled "Recent Experiences." The "Edit" button descends. At the bottom of the screen, he slides the red bar leftwards, shortening it by three minutes; he figures this should be enough time. In the top right corner, Asher presses "Delete."

Slipping his phone back into the pocket of his shorts, Asher takes a deep breath and stands up. He feels a little bit dizzy, but that feeling, too, soon fades, leaving him alone at the top of the waterfall. Asher takes in the view again, more quickly this time, and heads back down the path. ■

The Two Culture Problem Reinvigorated

Nika Lea Tomicic

Respected literary and scientific intellectual Charles Snow warned of the dangers of two cultures separating the world of academia in his 1959 Rede Lecture. [1] Decades later, journalist Nathan Heller in the New Yorker Magazine continues the debate to sensationalize the apparent decay of the humanities and the unmistakable rise of the sciences in US higher education.[2] The two-culture argument is thus rebranded as a fight between the declining humanities and the market-enriched sciences. This alleged binary distracts us from engaging in an interdisciplinary discussion that refuses to sell out to short-term profitability.

The initial sketching of the literary intellectual (also called the non-scientist) and their corresponding stereotypes made by scientists in the Rede Lecture offers a picture of an antiquated, ignorant hermit lacking a socially informed backbone. The novelist argues that scientists believe non-scientists are “totally lacking in foresight, peculiarly unconcerned with their brother men, in a deep sense anti-intellectual, anxious to restrict both art and thought to the existential moment.”[1] By framing the perception of literary intellectuals from the vantage point of scientists, non-scientists immediately offer less value to a forward-thinking society that equates innovation with progress. To further this, Snow argues that the literary world lags behind the scientific by getting stuck in problematic periods and modes of thought. Because of this, science is positively boosted as a progressive stimulant for the darker moments of human thinking and into an idealistic era of innovative change in the face of frozen non-scientists.

The debate in higher education currently rests upon the narrative of decline forcing humanities departments to rebrand out of survival in a profit-seeking market. Heller’s New Yorker article offers the viewpoint that the public, in this case, non-humanities students, has carried Snow’s non-scientist trope into assumptions threatening the future of these fields. At their core, the stereotypes and biases outsiders (and insiders) make about pursuing humanities directly relate to how success can be scientifically measured. Heller argues that because the “quantitative idea of rigor underlies even a lot of arguments about the humanities’ special value,” students lack respect for humanities courses. By using the scientific language of statistics, the humanities are probed under the gaze of the science community’s assumptions about the nonlinear and non-progressive

direction of the literary intellectual, only reinforced by a market with quantitative measures of success at its core. With this in mind, the humanities are seen as lacking the legibility of the sciences when up against market forces of productivity and addressing social change. Particular examples of direct assumptions are that the humanities do not teach career-oriented skills but a “cultivation of the mind,” that their studies remove students from what society sees as “‘central,’” and even that these majors are a “passion project” for the affluent.[1]

Again, Snow's pointed-out persona of a literary intellectual remains at the root of these common jabs, harming students and their financially strained departments in reputation and the market's demands of measurable productivity. As a result, the humanities departments and their associates have been forced to rebrand under the pressure of erasure and irrelevance, showing real impairment due to the two-culture debate. Instead of reiterating the importance of a degree in their departments, fields like English must use more profitable language in public-facing media, such as "career preparedness" and "consulting" to stay in the university's funding pool.[2] Through this, Snow's literary intellectual faces a business's bottom line that must adapt to the demands of market-supported fields to be considered reputable. This frightening diagnosis of the humanities majors today can also be comparatively traced to Snow's depiction of the scientist, which is more favorable economically and socially.

In the Rede Lecture, Snow argues that the scientist's opposing characteristics of working towards solving social problems that align with society's demands. First, while non-scientists perceive scientists as "shallowly optimistic" and "unaware of man's condition," the scientific community as a whole is argued to have "the future in their bones."[1] Even though the non-scientists' characterizations of scientists are negative, the market that demands constant innovation and change that embraces the future favors science as an unstoppable force. This bias translates into a scientific community being ahead of the curve even though it does not fit into non-scientists' ideal scholar. As Snow puts it, the inability of non-scientists to share the basic understanding of core tenets of scientists creates the worrying idea that with fields like physics, "the majority of the cleverest people in the western world have about as much insight into it as their neolithic ancestors would have had."[1] Through this slight exaggeration, the scientist becomes a specialized beacon of light directing society toward the future that tolerates but continues to degrade the lagging humanities. As a result, placing the two cultures in a warring and imbalanced competition with science leagues ahead of the humanities carries the debate into present questions over prioritizing STEM education in profit-driven universities.

Carrying the two-culture debate into current universities, STEM is placed in the fortuitous position of financial and social support without questioning if this tunnel vision towards profit is sustainable. The New Yorker journalist uses the example of Harvard University, the wealthiest university in the world.

As Heller wanders around the massive new Science and Engineering Complex, his writing changes into jealous awe of the scientifically certified excellence at work that is virtually limitless. The author even confesses that he would want to redo his college major and become an engineer, a clear signal that the scientist's image carries into the desires of both reputation and profit for individuals today.[2] The image of science envisioned initially in the decades-old Rede Lecture holds as top institutions rush to fund, pursue, and endorse STEM to the detriment of the humanities that are seen as being stuck in time and place. Notably, the author makes a slight caveat to his STEM frenzy when he mentions that the "market mentality" boosting this gold rush may be too short term in thinking and "the value of the educated human touch is likely to hold in a storm of technological and cultural change."[2] Notably, by characterizing the humanities as having an "educated human touch," Heller is revealing a rebranding and even reimagining of literary intellectuals as less so being scholars to a certain tangible discipline but to the human condition as a whole. Because of this, even though STEM is favored, the current iteration of the age-old debate offers space for an interdisciplinary approach to reject an academic binary altogether.

Charles Snow's 1959 Rede Lecture introduced the two culture debate that pitted scientists and non-scientists into two unconquerable factions, and this idea remains in the current issue of the public's perception of the humanities and STEM disciplines. Worryingly, the rebranding of the humanities to the language and legibility of the sciences harms the integrity of these fields, even though profit remains the goal of all educational institutions. Keeping this in mind, as an STS major, the interdisciplinary joining of the two cultures has proven personally beneficial in and out of the classroom. Accepting that the two culture debate remains relevant in decision-making, young students should pause before embracing the easy stereotyping of an entire field and instead embrace an interdisciplinary approach aware of the nuance of education. While the current solution to the debate might be for the humanities to adapt, STEM will soon have to reconcile with their short-term leaps in the name of profit that mainly work to advance an investor's, not society's, progress. ■

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The Great Rat Race: How Public Hype Created and Destroyed LK-99

Kevin Pham

When a Korea University research team announced their discovery of LK-99 this past summer, a potential room-temperature superconductor, the much-coveted Nobel Prize seemed attainable.[1] Promises of cheap magnetic levitation trains, 100% lossless power grids, and quantum computers propelled the breakthrough into a hit internet sensation.[2] At that moment, it was supposed to be the physics discovery of our lifetime! That was until peer review experiments from across the world crippled any hopes of a technological utopia. According to one such peer-review experiment, LK-99 was actually an insulator, with its ferromagnetic traits resulting from copper impurities, and the material having no signs of the illusive Meissner Effect.[3]

Although room-temperature superconductors are theoretically possible, the public hype and subsequent disappointment surrounding LK-99 might damage the credibility of future research papers. Heightened public attention could also bring much-needed funding for related projects. Regardless, the race to discover a room-temperature superconductor spotlights the faulty research and selfish motivations behind scientific discovery.

Image Credit: tomshardware.com

Glory, Greed, and Discovery

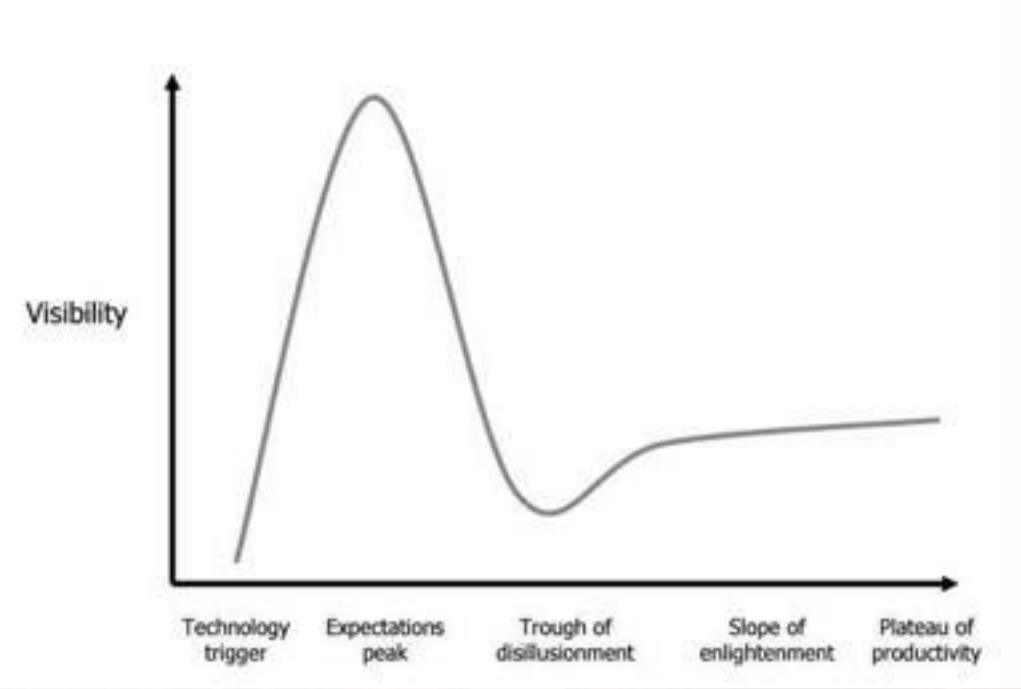
The Nobel Prize for Physics is the ultimate award for academics and scientists in this field. Besides monetary compensation and worldwide recognition, laureates are cited more by their fellow scientists and spark further research in their field of expertise. This phenomenon was observed by J. Georg Bednorz and K. Alexander Müller, who shared the 1987 Nobel Prize for their discovery of high-temperature superconductors.[4] Their 1986 paper was not cited for the rest of the year, but received over 7,000 citations after their nomination.[5] Given its technological impacts, the discovery of a room-temperature superconductor would ensure the Physics Prize for its researchers. The Nobel Prize won by Bednorz and Müller laid the foundations for semiconductor research, forming a theoretical framework for its existence in room temperatures. The discovery of a room-temperature superconductor would guarantee hype from research teams and amateur technologists across the world.

Artist: Kayla Fang

Not all research papers are a one-man effort. According to the Nobel Statutes, no more than three laureates could share a Nobel Prize at a given year and field.[6] This causes a problem with the larger research teams that drive these types of projects. After all, who dictates which researcher gets recognized for their efforts? Given the personal motivations behind this award, it is clear that paper authorship is invaluable. The Korea University researchers encountered in-fighting over the Nobel Prize's limit on awardees; this led to one author, Young-Wan Kwon, being excluded from the research paper's authorship credits. In a bizarre reaction, he uploaded the incomplete research paper on Cornell University's arXiv Server, which forced the researchers to prematurely announce LK-99 and publish a corrected version. Notably, the incomplete version credited Kwon as a co-author. Numerous research teams are driven by the desire for fame; nevertheless, the competitive nature of recognition raises doubts about the reliability of scientific breakthroughs. Public hype has driven the discovery of LK-99, and would also lead to its downfall.

Expectations and Hype

The unfolding drama surrounding LK-99 highlights the performative and constitutive nature of expectations throughout the discovery process. They play a central role in attracting necessary allies through private investors or public funding, defining roles within the research team, and establishing mutually binding obligations and agendas.[7] Shared visions are fundamental in cohesive research teams; however, LK-99 reminds us that expectations are often double-edged, shaping public narratives that could harm the cumulative development of emergent technologies.



The Gardner Consultancy Hype Cycle, From Mads Borup et al.

We can apply the Gardner Consultancy Hype Cycle to understand not only the origins of LK-99 but also the "race" to discover room-temperature superconductors. [7] Bednorz and Müller's Nobel Prize in Physics should be seen as the "Technology Trigger" that sparked both public and academic interest in superconductor technology. The temporal nature of hype becomes evident as researchers strive to build upon this breakthrough and possibly obtain the same notoriety with their own discoveries.

Expectations peaked with the premature announcement of LK-99. What was once an academic niche in physics became an inflated discussion topic across social media platforms, especially within enthusiast communities. For laypersons and amateur technologists alike, the dream of a jetsons-like utopia seemed obtainable. For example, one influential Twitter/X user and Princeton physicist, Alex Kaplan, posted a tweet explanation series with over 131,000 impressions.[8] By explaining the real-world technological impacts of LK-99, Kaplan inadvertently heightened public expectations with the dreams of a science-fiction utopia.

Of course, the Trough of Disappointment became apparent when peer-review experiments failed to replicate the results of the Korea University team.

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Artist: Kayla Fang

How about Gardner's Slope of Enlightenment and the Plateau of Productivity? For most scientists, the fallout of LK-99's aftermath has granted much-needed attention to their research. Scientific research on room-temperature superconductors, despite suffering through another disappointment cycle, could still benefit from public discourse. Chistopher H. Hendon, an University of Oregon associate professor of chemistry and biochemistry, announced:

"I guess my conclusion on all this is I'm kind of happy to see it — it's the first time in a really long time that we've seen science not be so political. We're all just happy about science, and it's kind of cool." [9]

Future Outlook?

All in all, the hype originating from the 1987 Nobel Prize might have led to LK-99's unfortunate circumstances. Not all scientific failures are failures in the long term. From the hype-to-disappointment cycle, scientists can build upon both the successes and failures of their predecessors. If the room-temperature superconductor is discovered one day, the research team driving it would, hopefully, not make the same mistakes committed by the Korea University team.[10] ■

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Maddie Cortesi

Reflection & Visual Analysis

In a mixed-media collage and painting on cardboard, I explore themes of self-examination, hybridity, birth and re/generation, reproduction, and monstrosity. Based on feminist theorist and physicist Karen Barad's assertions about self-dissection and infinite possibility in "Transmaterialities: Trans*/Matter/Realities and Queer Political Imaginings,"[1] and substantiated by feminist STS scholar Donna Haraway's "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,"[2] I aim to visually represent the queer, chaotic, embodied, patchwork nature of identities.

Inspired by these authors to use the body as the focal point of my artwork, I brought to life the visceral imagery found in Barad's writing about "tearing [oneself] open," "drawing blood," the "anarchic womb," magnetic fields, void space, "chaos and blackness" spilling forth, genesis, patchwork, seams, sutures, stitches, the uncanny, and "the electric body."[1] By placing Barad's ideas about deconstructing the "natural" at the atomic level in conversation with Haraway's understanding of the cyborg as a vessel for speculative potential, I generated an artwork that portrays the intensity of self-constructing, the importance of questioning normativity, and the liberation of embracing partialities, particularly as it pertains to queer realities.

The figure is laid out on a table, stretching open the skin of their torso to reveal a cavity overflowing with colorful trinkets. The use of found objects and craft materials such as corks, earplugs, plastic bottle caps, buttons, a kitchen knife, felt, magazines, and feathers transcend two dimensional space and leave an eclectic impression on the viewer through tactile collage and stitching. Before there was stitching and gluing, there was a black void waiting to be populated.

Artist: Maddie Cortesi

Hours were spent hand-stitching beads into this vivisected body and silver items in the background give it a physically reflective quality, speaking to the metaphorical, the metallic, the robotic.

To further dissect the role of the cyborg in this artwork, Haraway's "A Cyborg Manifesto" defines the cyborg's unique political and personal power. In this work, Haraway asks the reader to grapple with accepting partiality: partial truths, partial bodies, partially human. Haraway argues that cyborgs are about "transgressed boundaries, potent fusions, and dangerous possibilities," as well as about "lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints."[2] Evoking the Frankensteinian image of a not-quite-fully-human, sutured, soldered body, cyborgs are "a kind of disassembled and reassembled, postmodern collective and personal self."[2] Body parts surrounding the torso chasm are patterned with magazine photography, literally assembling themselves from different sources.

Haraway and Barad both discuss realities and possibilities. They recognize the value in entangling reality and possibility, and point to its byproducts: fabricating boundaries and binaries, enabling exploration and empathy. Barad draws on theorems from quantum physics and the history of science to discuss the intersection of reality and possibility, showing how it enhances "queer political imaginings" of liberated lives. By placing these two authors in direct conversation, queer political imaginings can be reified and recognized in theory and in action. The striking power and potential found in re/birth and monstrosity are explored as two inextricably intertwined themes. On the positive aspects of monstrosity, Barad articulates how "the promise of monsters is a regenerative politics, an invitation to explore new ways of being in touch, new forms of becoming, new possibilities for kinship, alliance, and change. Regeneration understood as a quantum phenomenon brings indeterminacy's radical potential to the fore,"[1] advocating for fluidity and accepting uncertainty. Haraway agrees, and posits that there are further lessons to be learned from cyborgian manifestations and conceptualizations of gender as "the partial, fluid, sometimes aspect of sex and sexual embodiment. Gender might not be a global identity after all, even if it has profound historical breadth and depth."[2]

Birth is a topic that Haraway and Barad disagree on. Throughout "Transmaterialities," Barad advocates for the empowering and illuminating significance of queer re/birth as one enters into a new phase or embodiment methodology for their identity. But, Haraway's cyborgs are more "suspicious of the reproductive matrix and most birthing...we require regeneration, not rebirth, and the possibilities for our reconstitution include the utopian dream of the hope for a monstrous world without gender."[2] Just as the cyborg can transcend notions of race, it can also offer ways to transcend beyond gender. Confronting a cyborgian identity requires dismantling and surpassing restrictive social categories through the implementation of machine, animal, nonhuman genetic material, or software in

Artist: Maddie Cortesi

the body. Pairing Haraway's genderless utopian fantasy with Barad's desire for an innate acceptance of fluidity, visions emerge of a world less marked by damaging enforcements of a gender binary.

Dualisms and binaries, implemented by sociopolitical norms, have incredible power over the body and thus over the mind. The mind is crucial for Barad. It is the location of the imagination. They ask us to imagine breaking out of restrictive realities into a state of electrified queer liberation in a particularly moving passage:

> *"Can we trans/form, regenerate, dismember, and re-member anew fleshly bodies in their materiality? [...] might a regenerative politics with all its monstrously queer possibilities still serve to recharge our imaginations and our electric body-spirits, helping us transition from momentary political and spiritual rigor mortis to living raging animacy?" [1]*

Overall, for Barad and Haraway, they believe it is within the monstrous, the freakish, the matter that constitutes "unnatural," where the most acceptance of difference and change flourishes. It is within the imagination-turned-rageful-action where we unlock new possibilities and affect our realities.

My artwork visualizes the process of self-discernment and dissection to reveal (my) "queer political imagining" and reflect the overwhelming process of navigating and interrogating one's own identity. In reading and engaging with these texts, I was able to further open myself up to the possibilities of my gender identity. In the guiding quote for this artwork and essay's conceptualization, Barad and Stryker call the reader to action.

"You are as constructed as me; the same anarchic womb has birthed us both. I call upon you to investigate your nature as I have been compelled to confront mine" [1]

"To those who would position their own bodies as natural against the monstrosity of trans embodiment: examine your own nature, stretch your own body out on the examining table, do the work that needs to be done on yourself [...] discover the seams and sutures that make up the matter of your own body" [1]

It was important to stitch the beads down, not glue, to participate in this action of reflection, suturing and curating a creation...the very exercise that was emphasized by Barad and Stryker's calls for self-examination in "Transmaterialities." Like Frankenstein piecing together his monster, I labored and cobbled, stitched and assembled. ■

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Artist: Maddie Cortesi

“Self-Dissection”

Mixed-media collage on cardboard, acrylic paint, beads & found objects. Life-sized torso.

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