

JETTISONING THE FRAME

Strategies for
Designing
at the Threshold

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CONTENTS



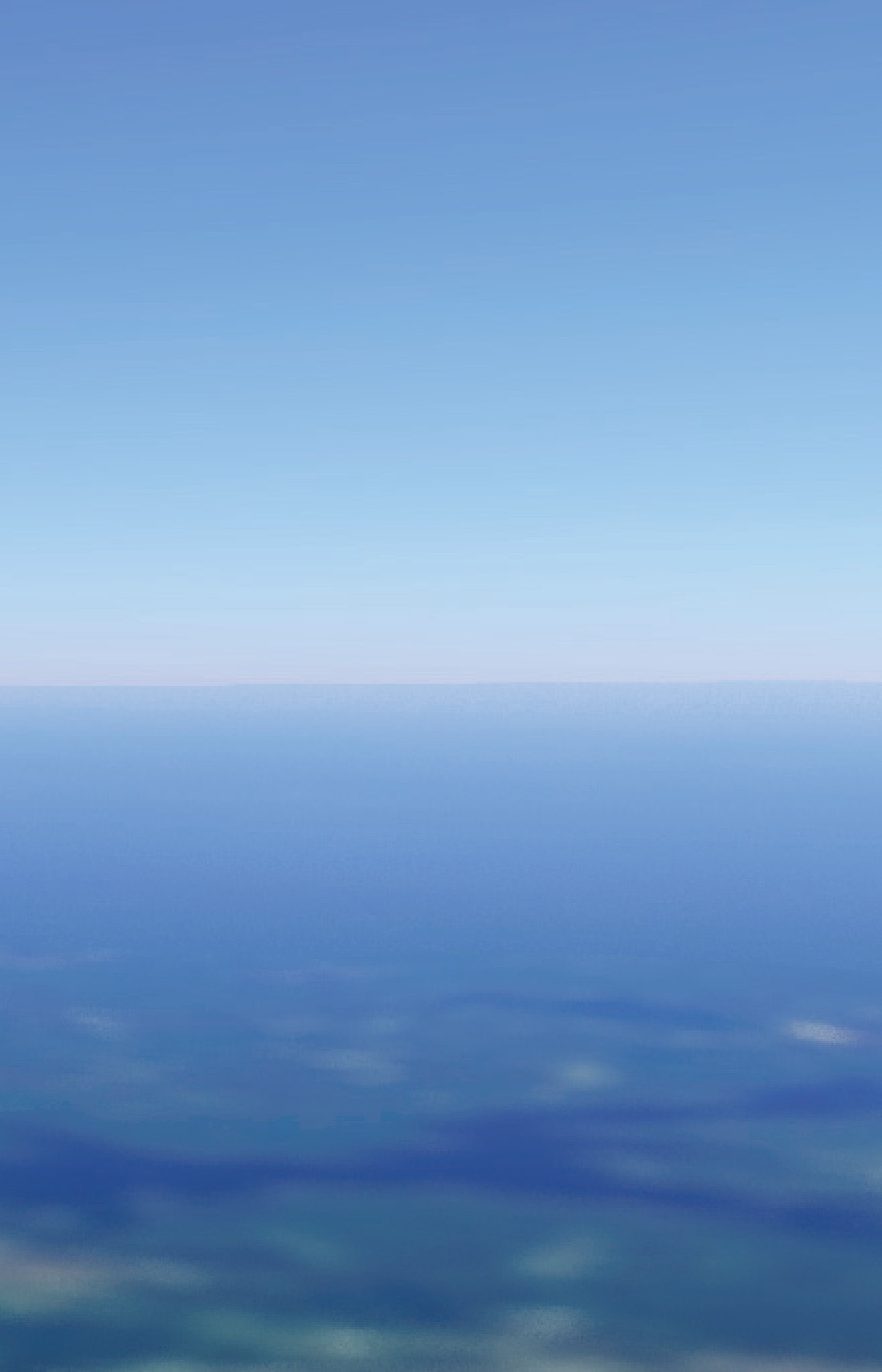
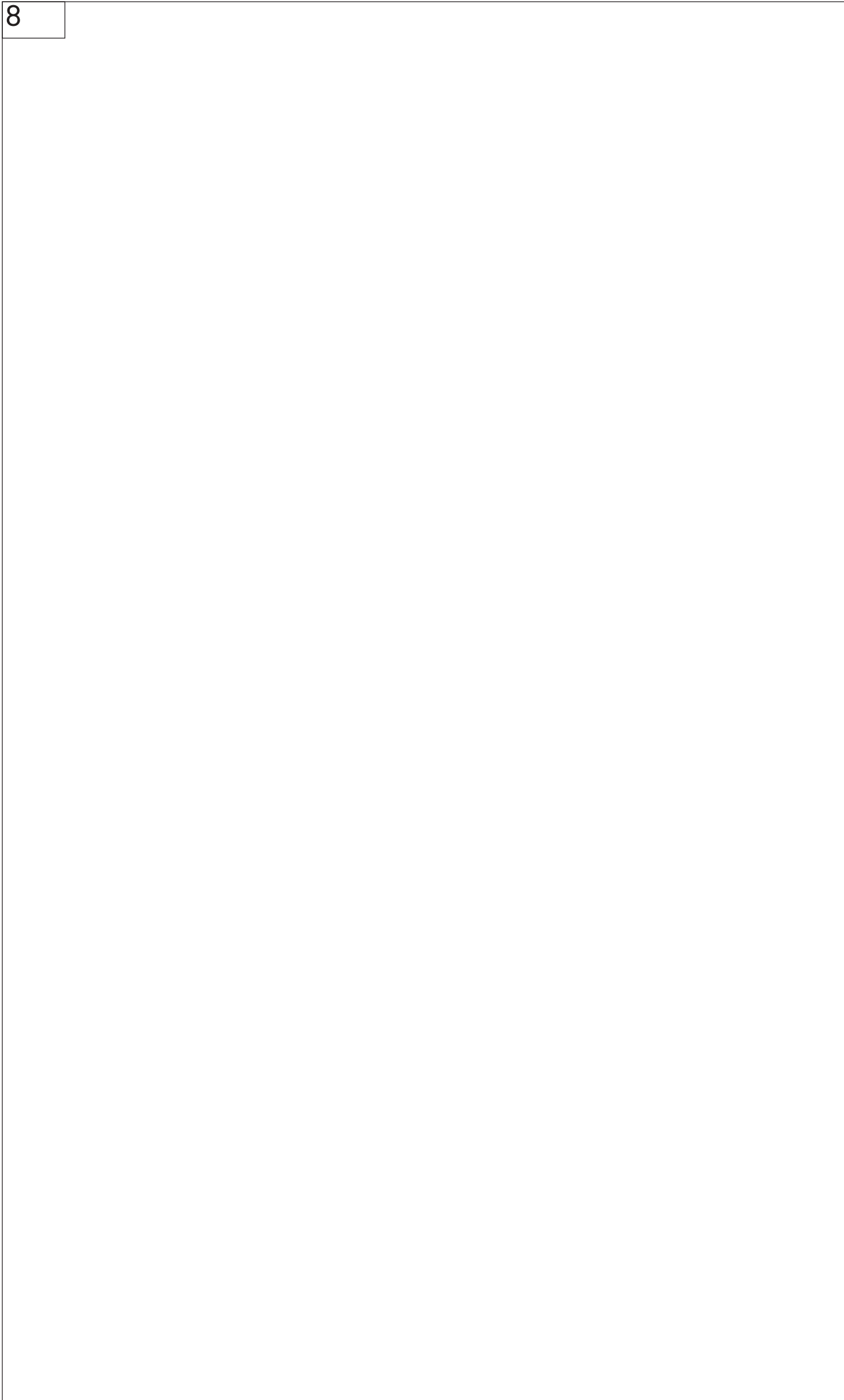
07	ABSTRACT
10	AT THE THRESHOLD: AN INQUIRY INTO GRAPHIC DESIGN PROCESS AND PRACTICE
40	SOMETHING IS BROKEN: A CONVERSATION WITH INGRID BURRINGTON
48	PROJECT DOCUMENTATION
108	UNLIMITED DEMAND: A CONVERSATION WITH CAMERON LA FOLLETTE
118	BIBLIOGRAPHY
120	ACKNOWLEDGEMENTS & REFERENCE

➤ An image produced by a Facebook subsidiary depicting the landing site for a subsea fiber-optic cable (codenamed Project Jupiter) in the small town of Tierra Del Mar on the coast of Oregon. The cable was built to transfer information at high speed between continents. It's construction produced severe environmental consequences for the local community and environment. → Find more information about Tierra Del Mar and the Jupiter cable on page 38 and page 66

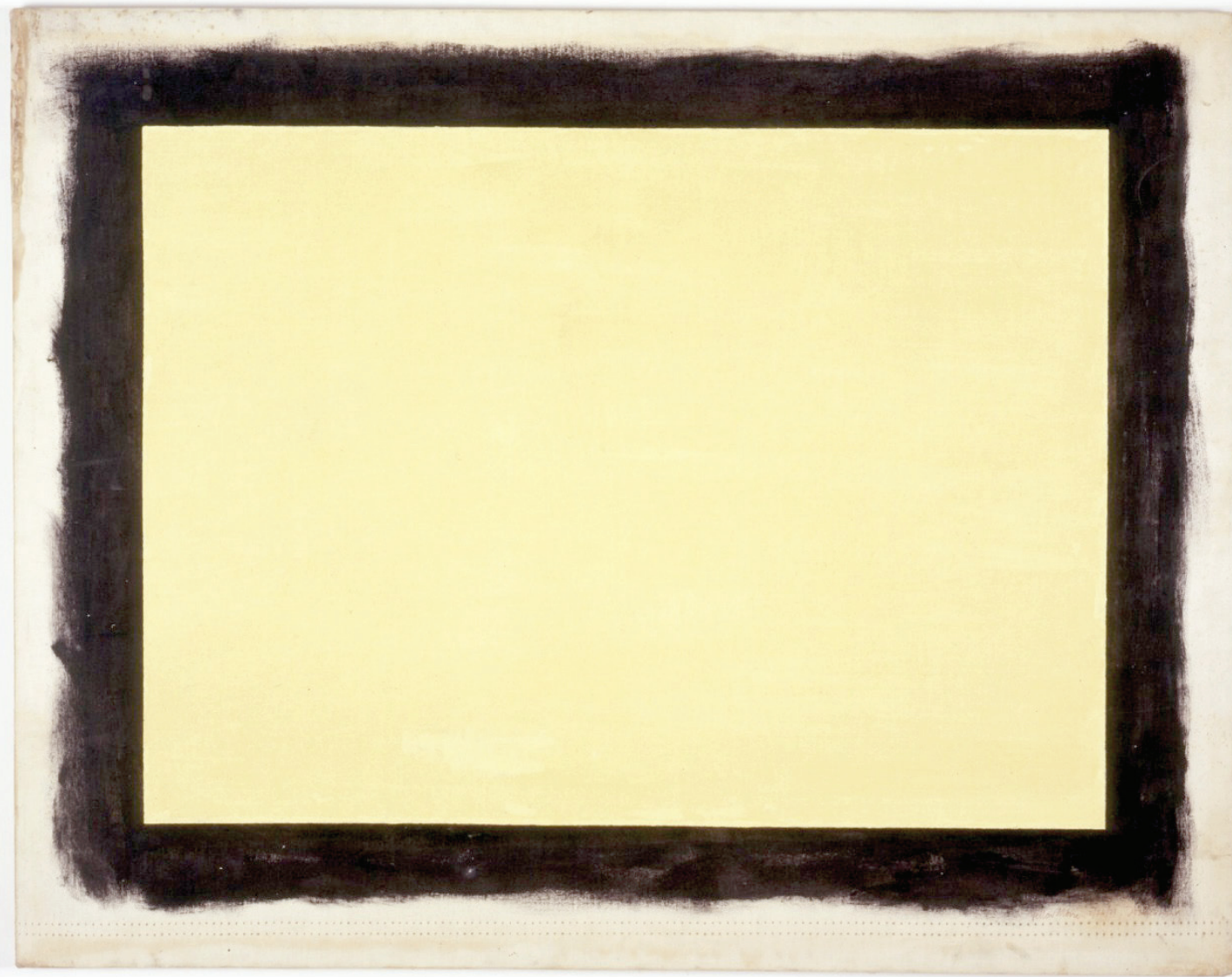
ABSTRACT

Jettisoning the Frame: Strategies for Designing at the Threshold explores graphic design's capacity for facilitating critique and understanding of accelerating systems of technological control and complexity. Working across archives, architectures, and infrastructures, designing at the threshold is an approach that takes the opacity of systems and subjects alike as a starting point from which new possibilities, configurations, and relations emerge. It is a loose methodology predicated on shifting, jettisoning, and reorienting the role and frame of the designer from objectivity to subjectivity. From neutrality to implication. From scientific to messy. From solutionism to something else.

The image used both on the cover and throughout this book is a glitched screen capture from Google Maps taken during my first semester at RISD. The image depicts a freeze-frame between the top-down perspective of the standard maps view and the 360° orientation of Google Street view. In the final pages of this book, Google Pegman, a Google Maps avatar, can be seen flying across the threshold between these two representational frames. I use the image as a metaphor for designing at the threshold. → The full image containing Google Pegman can be found on page 122



AT THE THRESHOLD



Tony Conrad, Yellow Movie, February 26, 1973.

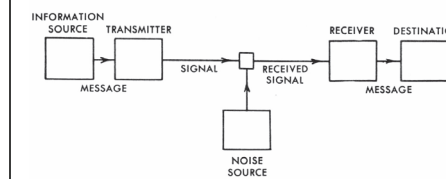
An Inquiry into Graphic Design Process and Practice

A PRETENSE OF TRANSPARENCY

In this essay, I capture some of my driving ideas about graphic design and the role of the graphic designer in relation to systems of technological control. It's a portrait of my process and understanding of the field's relevance today. Graphic design was introduced to me as a tool for clarifying information. When I was working in a commercial studio, I understood my role as presenting the client's message as clearly and objectively as possible to the consumer. This idea maps onto popular communication models,¹ in which a message follows a linear path through a transmitter, noise source, and receiver or channel before reaching a destination.¹ It also parallels information models like black boxes, which are systems characterized only by their inputs and outputs. In the context of these models, the graphic designer is imagined as the neutral transmitter, or as the invisible process occurring within the black box. The designer is a value-free actor transforming raw information into a transparent and consumable form. However, I have found that this process breaks down in practice. Each time a designer handles a message or input, they decide not only what is published, visualized, or represented, but also what is not. This negative or counterform of the output suggests that transparency is itself a form of obfuscation.

In a world in which transparency is not evenly distributed, and tech corporations have the capacity to render subjects transparent while remaining opaque themselves, this could be interpreted as a problem.² However,

if we consider the opacity of systems and subjects alike as a starting point instead of as problems to be solved, new possibilities emerge.³ I believe that embracing opacity shifts the role of the designer from objectivity to subjectivity. From neutrality to implication. From scientific to messy. From removed to embodied. From solutionism to something else. The pretense of transparency and the need for an embrace of opacity and its terms is what has motivated my practice. This is especially true in the face of



The Shannon-Weaver model of communication.

1. The Shannon-Weaver model of communication has been called the "mother of all models." Social Scientists use the term to refer to an integrated model of the concepts of information source, message, transmitter, signal, channel, noise, receiver, information destination, probability of error, encoding, decoding, information rate, an channel capacity.
2. Opacity and transparency are broad concepts with rich philosophical and theoretical histories, debates, and applications. I am trying to make sense of these categories as they relate to my experience within a graphic design process and practice. My goal is to shift my practice toward a more productive ground for facilitating critique and understanding of technology. There will likely be instances where my reflections on opacity or transparency come up short, are reductive, or conflict with the broader theoretical context that exists around the categories. I welcome critique or feedback on this and acknowledge that the thinking represented in this essay is evolving and limited by my experience and position.
3. This idea was introduced to me by Nora N. Khan and Théo Lepage-Richer, in their respectively titled courses, Criticism in the Age of AI and Neural Media: A Cultural History of Machine Learning. Nora shared the work of Zach Blas on the topic, and both Nora and Théo assigned For Opacity by Édouard Glissant, who demands "the right to opacity for all."

the accelerating complexity of science and technology.

GRAPHIC DESIGN AS REALISM: A PRETENSE OF TRANSPARENCY

What is graphic design's relationship to transparency? I'm suggesting it influences both how graphic designers position themselves and what they produce. This has been a popular subject of debate since the 1990s, as designers focused on graphic design's relationship with authorship. In essays such as Ellen Lupton's "The Designer as Producer"⁴ — which riffs on Walter Benjamin's "The Author As Producer"⁵ but with less Marxism — and Michael Rock's "Designer as Author,"⁶ the debate centers on whether the graphic designer should be considered a visible and implicated author, a transparent and objective facilitator, or some shade in between.⁷ Lupton references the differences in these approaches as they relate to transparency, discussing "artists and designers who treated the techniques of manufacture not as neutral, transparent means to an end but as devices equipped with cultural meaning and aesthetic character." Transparency becomes synonymous in these essays with how designers consider their position and process of producing work. The designer who abdicates authorship and its subjectivity is appealing to transparency, imagining their process and its outcome as invisible. The designer who accepts that graphic design participates in social, political, or cultural production must also accept a level of visibility and responsibility. In advocating for a shift toward opacity, I argue for going beyond mere acceptance of authorship and moving towards a practice of explicitly acknowledging and embracing authorship as part of the design process.

I also suggest that the graphic design produces a type of representation that renders subjects, systems, and spaces transparent. It's important to note this form of representation is predicated on exclusion and redaction. The illusion of transparency is also a form of opacity. I speculate that this output is a result of graphic design's relationship with static perspectives and frames, which construct abstractions that stabilize observers, flatten subjects, and censor information. This could be understood as a form of realism, which John Friske describes in *From Power Plays/Power Works*:

Realism, as a mode of representation, is particularly characteristic of Western cultures and, therefore, in the modern world, of capitalism. It is as powerful and attractive as it is because it grounds our cultural identity in external reality: by making "us" seem real it turns who we think we are into who we "really" are. To achieve this, it must "know" reality in the way that science "knows" it, as an objective universal whose existence and truth are independent of culture.⁸

4. Lupton, Ellen. "The Designer as Producer by Ellen Lupton." Typotheque.Com, 1998, www.typotheque.com/articles/the_designer_as_producer.

5. "The Author as Producer" in Walter Benjamin: Selected Writings Vol 2, Part 2, 1931-1934

6. Rock, Michael. "Designer as Author." 2x4, 7 Jan. 2019, 2x4.org/ideas/1996/designer-as-author.

7. Michael Rock unhelpfully concludes his essay with the insight that "designer = designer."

8. Fiske, John, and Black Hawk Hancock. *Power Plays Power Works*. 1st ed., Routledge, 2016.

In appealing to transparency, graphic designers traffic in realism and construct material relationships. They create political arrangements between the representor, observer, and subject.

These relationships, as well those formed by the pretense of transparency in the process of graphic design, are uniquely suited to the logics of capitalism. If left unchallenged, I have found that they undermine any attempt as a graphic designer to critique technological systems of control and instead lead to the reproduction of those systems' logic and politics. While trying to shift my practice towards an embrace of opacity, I have struggled to unstitch or unseat design from what I understand as the politics of transparency. In attempting to do so, I hope to move toward more productive ground for critically relating to and understanding how state, corporate, and institutional power is produced by and complicit in the production of technology.

As a case study, I trace the role of the designer's relationship with transparency in the popular film

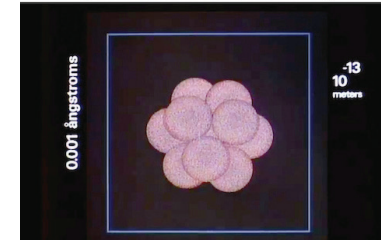
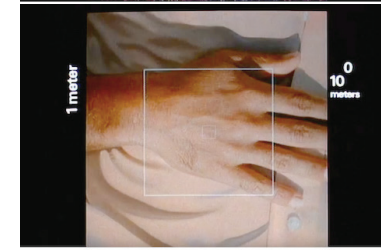
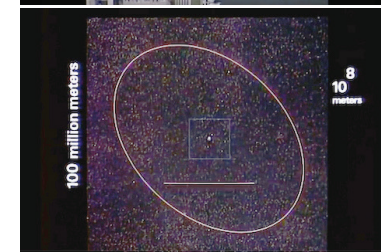
The Powers of Ten. The film is useful as it exemplifies the values of the designer I hope to shift away from, as well as graphic design's relationship to science, technology, and the corporations that profit from them.

THE POWERS OF TEN

In 1971, a film written and directed by Charles and Ray Eames called *The Powers of Ten* was released.⁹ The project's goal was to depict "the relative size of things in the universe."⁹ It begins with a ground level shot of a man and woman setting up a picnic on the Chicago lakefront. The camera then switches to an overhead aerial view, framing both figures — the man now sleeping on his back and the woman sitting up and reading a book — before zooming in to a tighter frame of one square meter. Black borders appear with text that indicates the scale of the video frame in intervals of both meters and relative powers of ten, beginning with the interval of 10⁰. At this scale, the woman is now cropped out of the frame and the man is centered. Departing from this scene, the frame begins to expand at a rate of one power of ten every second. A blue box marks each interval, containing the park, then the city, then the whole earth as the scale progressively increases.

The intervals grow until the frame reaches 10²⁴ meters, containing the

9. Eames Office. "Powers of Ten™ (1977)." YouTube, uploaded by Eames Office, 27 Aug. 2010, www.youtube.com/watch?v=OfKBhvDjuy0.



Charles and Ray Eames. *Powers of Ten*, 1977 (video stills); color video; 9:00. Eames Office.

10. Wikipedia contributors. "Powers of Ten (Film)." Wikipedia, 13 May 2021, en.wikipedia.org/wiki/Powers_of_Ten_(film).

known universe. After a pause, the intervals decrease and the frame returns to the scale of one square meter (10⁰). The man on the picnic blanket reappears but now the frame zooms into his hand, passing through skin then cells then protons until finally vibrating quarks fill the screen at 10⁻¹⁶ meters. The film ends there, taking only nine minutes to attempt to represent the whole universe and everything in it.

Despite the immense shifts in scale, I find that viewing *The Powers of Ten* isn't disorienting or vertigo inducing. Its use of a static frame and vertical perspective produces a form of representation that is surprisingly stable. The film suggests a total view of the universe, but I suspect that if it were possible to shift the frame one square meter, it might be possible to see that most of the universe is actually left out.

During the nine minutes that we traverse space and time, we don't know what is happening to the woman who was sharing the blanket with the man. When the film began, she was sitting up and reading a book. After the frame traveled to the edge of the universe and back, she is seen lying on her side next to a closed book. What happened to her? Did she get bored and fall asleep? Was she daydreaming? It's impossible to know. Her story was cropped out, censored from our view while the frame centered the man, expanding and contracting in multitudes while fixed on him.



A behind-the-scenes look at the live-action photography of the picnic scene. Careful measurements were taken to assure the perfect distance between the subjects on the grass and the camera in the basket above, suspended by a crane.

Interestingly, or maybe unsurprisingly, the man on the blanket is a graphic designer. The role is played by Swiss designer Paul Bruhwiler.¹⁰ In making a film dealing

with a representation of the universe, I don't think the Eames' placement of a graphic designer at its center is a coincidence, but rather a demonstration of how appeals to objectivity are a thin mask for subjectivity or positionality.

The origins of *The Powers of Ten* reveal how IBM and the Eameses use design as a strategy to produce profitable narratives around science and technology. I'm interested in how this illustrates the way graphic design's politics of transparency aligns with the logic of capitalism. IBM commissioned the film as part of a broader educational programming project. This is evident in the following section of the IBM website titled "Popularizing Math and Science:"

11. IBM. "IBM100 - Popularizing Math and Science." Ibm.Com, 2021, www.ibm.com/ibm/history/ibm100/us/en/icons/mathandscience.

12. IBM. "IBM100 - Popularizing Math and Science."

13. Fiske, John, and Black Hawk Hancock. *Power Plays Power Works*.

In the 1950s, IBM engaged the husband-and-wife design duo, Charles and Ray Eames—known largely for their innovations in the design of chairs—to create a series of educational films and exhibits. These pieces didn't sell anything or mention IBM or its products. Instead, they sought to translate mathematical and scientific concepts into engaging learning experiences for general audiences.¹¹

Despite taking the form of film and exhibition design, it's most important to note that IBM understood the programming as a design project. This is clear in IBM's online materials, which state that "this deeper, long-term educational mission was central to [CEO's] Watson Jr.'s notion that 'good design is good business.' And central to that mission was the work of the Eameses."¹² Watson Jr.'s statement — that design benefits IBM's bottom line — implies just how design was seen: uniquely equipped to achieving the corporation's goals. The design of educational programming is profitable. Design has a purpose in service of capital.

PRODUCING THE KNOWN UNIVERSE: STATIC FRAMES AND VERTICAL PERSPECTIVES

Through its use of perspective and framing, design enabled IBM to represent the universe on profitable terms.

Representation, or the ability to depict a reality, system, or subject, is always an act of construction that is entangled with power.

Fiske establishes a foundation for considering representation as itself a driving power:

A representation presents again selected features of an absent 'reality' or referent. By presenting us with particular experience or knowledge of the real, a representation actually produces that reality, for our experience/knowledge of it becomes reality-for-us. Reality is always represented, we cannot access it raw: it never exists on its own terms, but is always 'reality-for-someone.'¹³

The Powers of Ten was an opportunity for IBM to produce a productive repre-

sentation of a specific reality, one that would benefit the multinational technology company.

Through various strategies, particularly the use of design, the film depicts the universe as broadly knowable, calculable, and therefore a subject to be acted upon. For IBM, a known universe is one that is also terrain for investment, extraction, or profit. An analysis of the formal strategies used in *The Powers of Ten* clarifies how design's relationship with transparency facilitated a reality-for-IBM.

14. Steyerl, Hito. "In Free Fall: A Thought Experiment on Vertical Perspective." *Journal #24* April 2011 - e-Flux. 2011. www.e-flux.com/journal/24/67860/in-free-fall-a-thought-experiment-on-vertical-perspective.

A static, implicit frame and use of perspective constructs a powerful politics. Both create mediated relationships between the observer and subject.

"In Free Fall: A Thought Experiment on Vertical Perspective," filmmaker Hito Steyerl explains that linear perspective imagines a stable horizon and observer. The spatial relationships created by this abstraction have material implications:

The use of the horizon to calculate position gave seafarers a sense of orientation, thus also enabling colonialism and the spread of a capitalist global market, but also became an important tool for the construction of the optical paradigms that came to define modernity, the most important paradigm being that of so-called linear perspective.¹⁴

While both linear and vertical perspectives are based on visual abstractions, they are perceived as natural, scientific, and objective. This lends both perspectives authority and divorce them from subjectivity. Where linear perspective is predicated on a stable horizon and observer, vertical perspective produces the illusion of a flattened ground with an imaginary observer floating above.

The vertical perspective suggests an objective, authoritative, and scientific representation of the world. In reality, this is often an abstraction, constructed from a stitched-together, flattened, and imagined ground. In *The Powers of Ten*, the Eames position the observer above the frame, suspended from a position of superiority.

Alex Funke, a cinematographer and effects artist who worked on *The Powers of Ten*, demonstrates how the film

was produced by stitching and overlapping images taken from various sources. This process depends on distortion to construct the illusion of a stable reality:

There was also a lot of airbrushing to be done. For example, the photos from the Chicago Aerial Survey were a tiny bit askew. The airplanes weren't exactly looking down on the landmarks, so we had to do a perspective adjustment. Part of that was done by tilting the paper when the prints were being made to skew the perspective.¹⁵

15. Hughes, James. "The Power of Powers of Ten." *Slate*.Com, *Slate*, 4 Dec. 2012. www.slate.com/articles/arts/culturebox/2012/12/powers_of_ten_how_charles_and_ray_eames_experimental_film_changed_the_way.html.

In addition to this artificially constructed ground, vertical perspective further distorts the subject by flattening it. Eames Demetrios, a grandson of the Eameses and principal of the Eames Office explains this phenomenon:

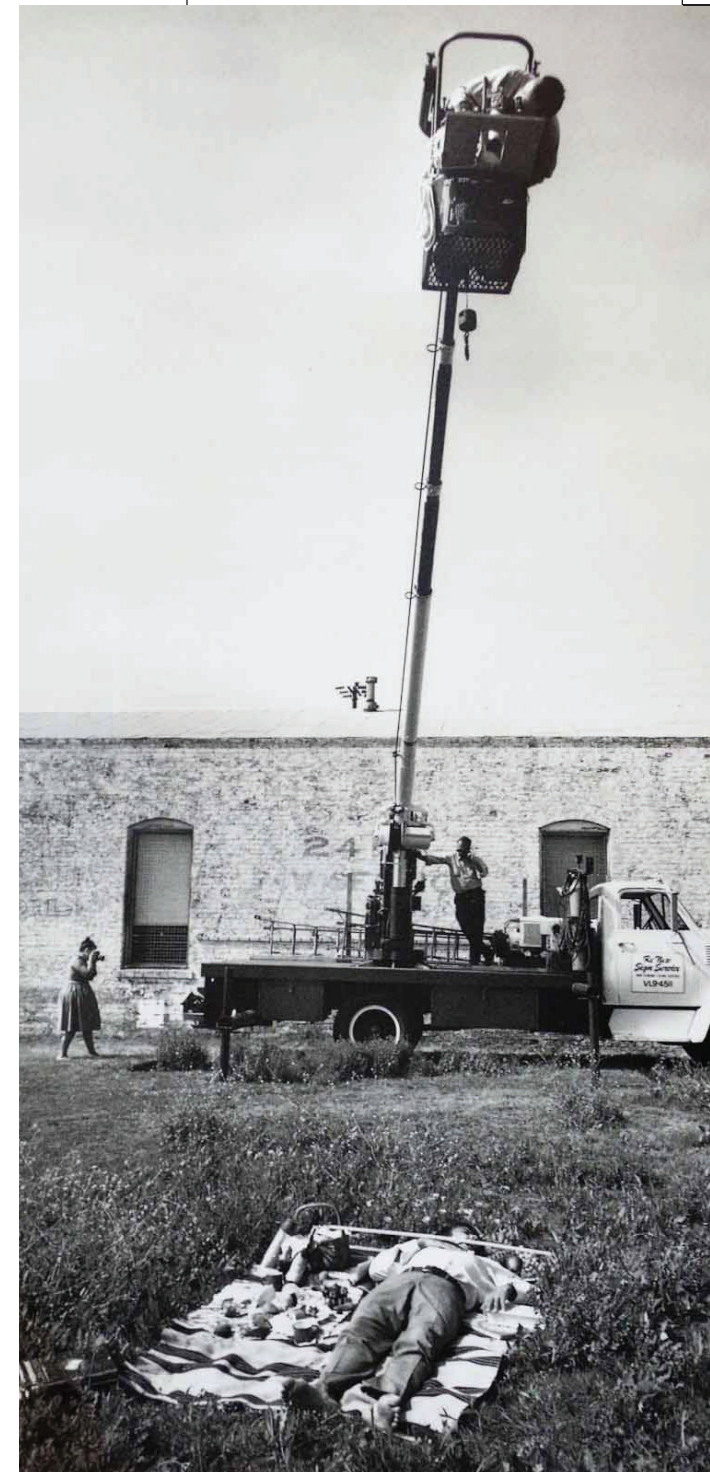
One of the funny things about when you go to the site in Chicago is that it's actually on a swell. You're used to seeing it in the movie with everything flattened out. The footage of Chicago is actually the most disguised illusion of the film.¹⁶

In the same way linear perspective constructs the illusion of an artificial horizon and stable observer, vertical perspective creates a stitched, flattened ground and suspended observer. The presentation of these fabricated images as an objective or scientific reality benefits IBM's image as an all-knowing rational entity and sound investment.

What does this all have to do with graphic design? It's been my experience that graphic design constructs a stable perspective with politics and characteristics similar to vertical perspective. Artists and designers working in other disciplines have pointed out this tendency to me. While taking a course titled *Immersive Spaces* at the Rhode Island School of Design (RISD), instructor Mattia Casalegno repeatedly commented on how I worked like a graphic designer, tending to produce "a series of flattened planes." Similarly, when I was taking a different class with a student from the industrial design department, they commented in surprise at how flat my work was. These could be reflections of my own style or approach, but their comments suggested to me that there may be innate flattening qualities to graphic design.

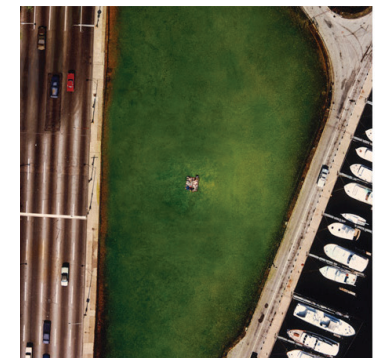
I suspect that whereas mediums like painting, film, or photography use linear perspective as a way to construct spatial abstractions, depth, or compositions, graphic design's relationship with its medium and audience depends on an embrace of something similar to vertical perspective.

In this book, I have chosen to arrange the content on the page in a way that imagines the reader looking down from above. I flatten text,

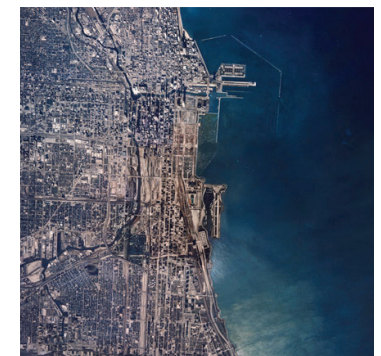


Charles Eames lines up the iconic picnic shot that introduces the original *Rough Sketch* film from 1968. Though photographed in Los Angeles, the picnic scene was transplanted to a Miami golf course during production at the Eames Office.

16. Hughes, James. "The Power of Powers of Ten."



At 10⁴, the Los Angeles lawn that's been painstakingly blended into Chicago's Burnham Park is visible.¹⁵



The Loop at 10⁴. Cinematographer Alex Funke says he still regrets that the particle accelerator rings at Fermilab, near the outskirts of Chicago, would have been clearly visible as the view widened to the west, but they were painted over with artificial clouds to disguise a troublesome spot on the photograph that was too difficult to retouch.¹⁵

image, and illustration onto the page, creating an imaginary ground similar to the one constructed by a vertical perspective.

Instead of a horizon line and vanishing point, graphic design deploys a system of grids, margins, columns, and frames as a way of organizing content and rationalizing composition. In an attempt to acknowledge this, I have made the frames that organize content on this page explicit. I have also created abrupt shifts in the scale of the type and image as a strategy to destabilize the frame. These decisions conflict with design's politics of transparency, in which the designer disappears into the background to prioritize legibility, smoothness, and efficiency. I recognize that this creates a reading experience that is at times fractured, disorienting, or potentially uncomfortable. It is an approach that is also uncomfortable and vulnerable for me as a designer, revealing the ways in which the page is constructed, arranged, and contrived.

THE MAP OF THE PAGE

Maps demonstrate the innate capacity of graphic design to construct a politics between viewer and subject through perspective. Maps enact a politics of vertical perspective, flattening subjects and positioning viewers in a position of power in relationship to a constructed surface and the space the map represents. They operate with the authority of scientific objectivity, despite being predicated on visual abstractions. As technologies of capture like drones and satellites enable the widespread construction of vertical perspective, they also shift the substrate of graphic design — replacing the page or the screen with an artificially constructed ground. In my research into tech platforms like Facebook and Amazon, the perspective that I encounter most often is vertical representation of spaces and subjects. This is prevalent in the documentation associated with Facebook and Amazon's construction of network and distribution infrastructures. The documents I have collected associated with these projects include maps,

diagrams, and renderings. They depict construction sites from above, often erasing or flattening local communities or realities. These forms of representation then become the medium for design and proposed grids, buildings, and interventions are rendered on top of the flattened ground as if it were a neutral page. This is separate from the act of mapping. It is a form of designing in relation to the map.

→ Find explorations of bureaucratic documents in the project documentation for *By Every Name* on page 66 and *Placements of Power* on Page 70

In this process, I have observed how parameters like page size, margins, or screen size are subsumed by street widths, building rooftops, and plots of land. It is a type of graphic design which compounds an innate tendency toward a floating observer with the actual perspective of a vertical lens, enabling corporations like Facebook or Amazon to treat land, people, and place as sites of extraction and intervention. This is a politics of transparency in action.



The three images above were found in documents related to Facebook's construction of a data center in Odense, Denmark. The purple, white, and red markings are used to indicate the sites intended or purchased for construction. → See full project documentation on page 66

As Fiske writes, "being able to see or know is not just a prerequisite for control, it is part of that control.... This is not news, for it has always been so. Europeans mapped the world as they explored, exploited, and colonized it."¹ Tech platforms inherit this legacy, mapping and designing as they expand, appropriate, and extract.

17. Fiske, John, and Black Hawk Hancock. *Power Plays Power Works*.

I've explored this process often through my work. In *Associates must be Detailed and Efficient*, I demonstrate how Amazon attempts to flatten and systematizes land to build a global network of fulfillment centers in the same way that it flattens terminated employees into redacted black boxes on the page of a document. It is a single formal gesture that relies on design's pretense and politics of transparency. In the same publication, I record how employees resist being black-boxed or flattened by insisting on self-representation within a system bent towards the erasure of labor. As I will describe later in this essay, resistance is achieved by destabilizing or subverting the use of an aerial perspective and an otherwise static frame.

In the project *Pegasus*, I created a variable typeface based on an aerial view of the grid of automated robots found in Amazon fulfillment centers as a way of exploring how vertical perspective has created new substrates and parameters for design. I demonstrate the typeface's qualities by applying it to the text of posters Amazon employees created to advocate for unionization. The variable components of *Pegasus* represent the fulfillment center's automated robots that glide around the letterforms and shift the messages in and out of legibility. The project explores how design's aerial orientation flattens, obscures, or challenges access to self-representation and the voices of those operating on the ground. In three major contemporary instances of aerial graphic design, it's possible to see how vertical and artificially constructed fields produce dynamics of control, extraction, and resistance. During the George Floyd Protests, Washington D.C. Mayor Muriel E. Bowser authorized painting the phrase "Black Lives Matter" in yellow, 35-foot-tall capital letters on the asphalt of a street in front of the White House. The text was designed to address a vertical audience — early sketches of the project used Google Maps satellite imagery as medium, and the message is only fully legible if observed from above. By engaging an audience removed from the local context, Mayor Bowser was able to perform solidarity and gain national and global recognition while erasing the violence her local, pro-police policies enacted. This event demonstrates how transparency can redact lived experiences.

For many living in Washington D.C., the painted message was an abstraction that conflicted with the Mayor's funding and support of the Washington D.C. police force.

→ See project documentation for *Associates must be Detailed and Efficient* on page 84

→ See project documentation for *Pegasus* on page 90



Volunteers redact stars that appeared in the original mural in order to change to text to read "Black Lives Matter = Defund The Police."

On Twitter, the Black Lives Matter D.C. group articulated this disconnect, stating "this is a performative distraction from real policy changes. Black Lives Matter means defund the police."

To be represented from above is to be subjected to the politics of vertical perspective, which not only flattens but can also dehumanize, or silence. Graphic design adapts to this scale and is complicated in the violence that is enacted or, in the case of the mural in D.C., covered up.

18. "Black Lives Matter DC On." Twitter, Black Lives Matter DC, 5 June 2020, twitter.com/dmblacklives/status/1268903712581464066?lang=en.



A satellite image taken by Planet Labs soon after the two-block long Black Lives Matter mural was painted.

19. Wikipedia contributors. "Black Lives Matter Plaza." Wikipedia, 20 May 2021, en.wikipedia.org/wiki/Black_Lives_Matter_Plaza.

In an attempt to reclaim the message, protestors edited the text on the street, painting "Defund the Police" in the same yellow block letters used by the city.¹⁸ An equal sign was also added by painting over a group of stars. The new message read: "Black Lives Matter = Defund The Police."¹⁹

By editing the text, protestors were able to temporarily contest the message, but not able to shift its orientation towards an aerial audience.

Implementing graphic design at a scale legible to aerial audiences is another strategy to resist or contest vertical

20. "A Giant Art Installation Targets Predator Drone Operators." Notabugsplat, notabugsplat.com.

21. Caycedo, Carolina. "GEOCHOREOGRAPHIES | Carolina Caycedo." Carolinacaycedo.Com, 16 Nov. 2015. carolinacaycedo.com/geochoreographies-2015.

representations. In the Pakistani province of Khyber Pakhtunkhwa, artists collaborated with local residents on a project called #NotABugSplat, which attempted to confront the dehumanizing perspective of the drone. The project's title references the military slang used by predator drone operators to describe people murdered on the ground. Artists produced a massive poster that depicted the face of a child who lost both her parents and two young siblings in a drone attack. The scale of the poster was designed with the intent that it would be visible by a drone or satellite. According to the project materials, "Humans appear as disposable bugs when viewed through a traditional drone camera. We changed this. Now, a drone will see the actual face of a child, creating dialogue, and possibly, empathy."²⁰

In *Associates Must be Detailed and Efficient*, I document how an employee who goes by Packman123 on TikTok insists on self-representation by adopting a parasitic relationship with vertical perspective. Packman123 produces viral videos of themselves packing boxes for Amazon. The videos appropriate the top-down perspective that Amazon uses to flatten, surveil, and attempt to erase employees. Packman123 depicts their labor by showing their hands and the act of packing boxes, but still protects their identity by hiding their face. Their identity is also protected by the homogeneity of Amazon's distribution facilities. It's unclear which fulfillment center Packman123 is working in because the centers are so carefully systematized. In this way, the TikTok videos twist the politics of transparency against itself.

In a project called *Geochoreographies*, artist Carolina Caycedo collaborates with communities along the Magdalena river in southern Colombia to respond to the construction and consequences of the El Quimbo Dam. A form of what Caycedo describes as "colonial infrastructure," the El Quimbo Dam threatens to fracture, undermine, or otherwise damage the livelihood of local communities and ecologies. In protest and in resistance to this infrastructure, Caycedo choreographs photographs taken by drones in which communities lie on the ground and use their bodies to spell out messages of protest. According to Caycedo, these "everyday geochoreographies humanize the landscape, countering the dehumanizing effects of the dam."²¹

The images contrast with the satellite imagery that enabled the construction of the dam. In order to insist on their humanity and contest the representation that enabled colonial interventions, participants in Caycedo's images must transform their bodies into letterforms. The intervention demonstrates how self-representation must adapt to the parameters of design at a scale of the vertical observer.



An aerial photograph of a massive poster created with the goal of producing empathy among drone pilots as part of the #NotABugSplat project.

→ See project documentation for *Associates must be Detailed and Efficient* on page 84



Four stills from one of Packman123's viral TikTok videos.



Collaborators spell out "YUMA RESIST" and "RIOS VIVOS" on the Puerta del Sol Beach on the Yuma (Magdalena) River in Oritoguz, Huila-Colombia as part of Caycedo's *Geochoreographies*. The beach would be submerged by the construction of the Oporapa Dam.

THE ACTIVE FRAME: DESTABILIZING THE POLITICS OF TRANSPARENCY

In addition to the construction of a stable perspective that borrows or explicitly leverages the politics of a vertical audience, design's investment in transparency requires a static frame. The frame is predicated on the inclusion of some material and exclusion of all others. The construction of a frame is not unique to graphic design. As Judith Butler argues in *Frames of War*, the convention of framing is implicit to representation, often overriding content:

"We cannot understand the field of representability simply by examining its explicit contents, since it is constituted fundamentally by what is left out, maintained outside the frame within which representations appear. We can think of the frame, then, as active, as both jettisoning and presenting, and as doing both at once."²²

It may be impossible to escape the frame's dual role. Still, graphic design's appeal to transparency is dependent on imagining the frame as inactive—as only presenting. Acknowledging the frame as jettisoning, or even acknowledging it at all, would undermine the abstraction of a stable, known subject or ground. It would accept that other, unaccounted for content exists.

The active frame also reveals that graphic design is always in the production of opacity. Vinca Kruk and Daniel van der Velden, the founders of the Amsterdam-based design studio called Metahaven, have written about transparency, opacity, and technology in their publication *Black Transparency*. In an interview on the topic, Kruk and Velden describe how the frame's dual role shifts the definition of graphic design from a politics of transparency towards the production of opacity:

Design is coming from the decision to publish something, wherever that may be. Every decision to publish is also a decision to frame a message. And design is, however minimalist or baroque it is, often a decision not to do something, to leave something else out. What else is that than high-resolution censorship?²³

Embracing the frame as active is an opportunity to destabilize graphic design's politics of transparency.

22. Butler, Judith. *Frames of War: When Is Life Grievable?* (Radical Thinkers). Reprint, Verso, 2016

23. Chae, James. "Hi-Res Censorship: Metahaven on Edward Snowden and Rebranding WikiLeaks." *The Verge*, 19 Dec. 2013. www.theverge.com/2013/12/19/5223620/hi-res-censorship-metahaven-on-edward-snowden-and-rebranding-wikileaks.

It opens up the potential of opacity, and as well as a mode of practice that is focused on always jettisoning the frame.

WHITE LAB COATS: GRAPHIC DESIGN'S OBSESSION WITH SCIENTIFIC RATIONALITY

In addition to deconstructing the use of a static frame and perspective, a shift toward opacity requires deconstructing graphic design's appeal to the pretense and authority of transparency. This is seen in the mode of graphic design as pseudoscience (or vice versa), adopted by design firms and educational institutions. In the history of graphic design, the emergence of industrial production fueled the decoupling of design from individual subjectivity and accelerated a shift towards systematization, objective rationalism, and the dream of the universal.

Put differently, it's been my experience that designers (myself included) like to cosplay as scientist, engineer, and mathematician, a phenomenon that has something to do with history and technology.



One literal example took place at Unimark International, a design firm headquartered in Chicago, Illinois during the 60s and 70s that worked with clients like American Airlines and Ford Motor Company. Bizarrely, Unimark required the graphic designers it employed to wear white lab coats when they were in the office. The absurdity of this workplace costume reveals how deeply graphic designers internalized a desire to inhabit the ethos of the scientist. According to Katherine McCoy, a prominent graphic design educator and practitioner who previously worked at Unimark, "these white lab coats make

Graphic designer at Unimark wearing white lab coats in the 1970's.

an excellent metaphor for the apolitical designer, cherishing the myth...that design is a clinical process akin to chemistry, scientifically pure and neutral, conducted in a sterile laboratory environment with precise and predictable results."²⁴ McCoy went on to co-chair the graduate Design program for Cranbrook Academy of Art.

I frequently find myself figuratively wearing the white lab coat, benefiting, even indulging in the authority of graphic design. Throughout this essay, I take the coat on and off, moving between authoritative and less-authoritative voices.

What is the origin of the designer-as-scientist fantasy? One place to blame is the Bauhaus, the famous German dance club, I mean influential German art school that emerged out of post-WWI modernism and in tandem with a wave of new production technologies. The combination of these shifts had profound implications for graphic design, and catalyzed a new era of typography characterized by geometric sans-serif alphabets and an emphasis on economy and clarity. In the essay "On the Letterform of the Age," graphic designer Bo-Won Keum describes how Bauhaus faculty Herbet Bayer's attitude aligned with this:

Bayer asserted that 90 percent of the material being read at the time had been produced by a typewriter or printing press. He asked why type couldn't be transformed for these modes of production, and become more simple and consistent. Why not rethink the letterform altogether — and, while at it, abolish the Roman uppercase capital letter?²⁵

In embracing new typefaces and cutting-edge equipment, designers ditched authorship and its implications along with serifs. This cleared the way for fantasies of universal form and solutionism, allowing German typographer Jan Tschichold to speculate about a universal, authorless typeface: "It cannot be open to one person to create the letterform of our age, which is something that must be free of any personal traces." His solution to subjectivity was his belief that it would be "the work of several people, among whom one will probably find an engineer." By appealing to the authority and perceived neutrality of emerging technologies and technical practitioners, graphic designers produced new forms, production methods, and a legacy of neutrality.

The Bauhaus and modernist design aesthetic was stripped of its deeply political and ideological context and exported to the United States where it retained its perceived neutrality and suitability for mass production.

24. McCoy, Katherine, and Steven Heller. *Citizen Designer: Perspectives on Design Responsibility*. 1st ed., Allworth, 2003.

25. This text was assigned as part of Marie Otsuka's course Web Type in Spring 2021. Keum, Bo-Won. "Triple Canopy – On the Letterform of the Age by Bo-Won Keum." *Triple Canopy*, 4 Jan. 2021. www.canopycanopycanopy.com/contents/on-the-letterform-of-the-age.

26. Ryan Diaz shared this resource with me when we were teaching typography electives during winter session of 2021. Thanks Ryan! Sfligiotti, Silvia. "THIS IS AUTO-TUNE TYPOGRAPHY - Silvia Sfligiotti." Medium, 21 Aug. 2020, silviasfligiotti.medium.com/this-is-auto-tune-typography-3953e74cc2ac.

27. "Lineto.com." Lineto, 2021, lineto.com/typefaces/akkurat.

It's not a coincidence the sans serif type that emerged from this period became the aesthetic of choice for corporations, banks, and government agencies. The perception of neutrality and objective rationality is a powerful tool for those who would like to avoid accountability, critique, or the perception of implication. In "AUTO-TUNE TYPOGRAPHY," graphic designer, teacher, and critic Silvia Sfligiotti discusses the contemporary use of default grotesque, or sans serif fonts in the context of their modernist legacy, labeling their popular use after the essay's title.

Sfligiotti criticizes the typefaces and designers who depend on them for their lazy politics, stating that AUTO-TUNE TYPOGRAPHY turns visual design into an automatic, a-critical activity, and gives up what I believe is still essential to this practice: taking responsibility for what things look like."²⁶

In my work I frequently, if not exclusively, use system default or grotesque fonts. While I've defended this as a strategy to link my projects to their often corporate subjects, it would be dishonest to say that I wasn't drawn to their highly systematized authority and neutrality.

The typeface that I have set this book in, LL Akkurat, is not an exception. It makes direct appeals to the values of a modernist legacy. Designed by Laurenz Brunner, LL Akkurat is described on the Linotype website as aspiring "to embody qualities such as technical precision, down-to-earth robustness, reliability, and neutrality." The politics embedded in graphic design's appeal to objectivity and solutionism through technologies of production has had other contemporary implications.

The contradiction of solutionism in graphic design is that the very ideology of objectivity that empowers designers to feel that they could, should, or must solve the problems of others is exactly what renders them uniquely incapable and unqualified to do so. In the project *Manual*, which speculates about different futures of masculinity or emotional capacity, I created conditions of control and extraction that mimicked the system I was trying to critique. Similarly, when I was working on the project titled, *The Illustrated Self-Instructor of Symbolical Heads*, I treated the machine

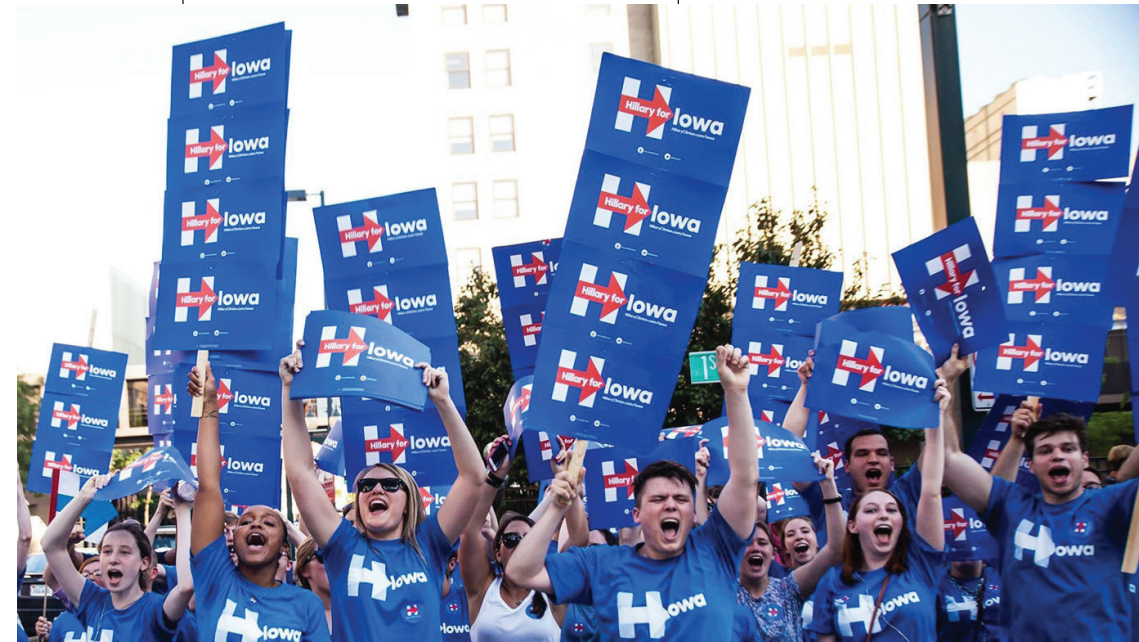
→ See project documentation for *Manual* on page 52

→ See project documentation for *The Illustrated Self-Instructor of Symbolical Heads* on page 48

learning image library as the default, experimenting with the tool instead of considering its embedded subjectivities. Both of these projects were in some ways affected by embracing the default position of objectivity.

This is evident when designers insist that graphic design is capable of solving broad social, political, or cultural problems. This contradiction was evident when the graphic designer and pentagram partner Michael Beirut led a team of designers in the creation of the branding for Hillary Clinton's 2016

28. Beirut, Michael. "I'm With Her: What I Learned Designing a Logo for Hillary Clinton." Design Observer, 28 Mar. 2017, designobserver.com/feature/im-with-her/39523.



A crowd wearing and holding Hillary Clinton branded materials gathers during the 2016 election.

presidential campaign. After Clinton lost the election, Beirut expressed disappointment over not only the loss of his preferred candidate, but also that the branding his team designed didn't guarantee her victory. In a piece written following the election, he notes that "the night ended sooner than I thought, and differently than everyone expected. Going home, with my necktie with its pattern of H logos loosened around my neck, embarrassed by my hubris and worried about the future of our nation, I tried to figure out what had gone wrong." As Beirut goes on to analyze the role of graphic design in the 2016 election, he doesn't include a reflection about his belief that a logo could alter the outcome of an election, or even more significantly whether designers should be determining the outcome of elections. Instead, he questions how Donald Trump won despite "bad typography; amateurish design; haphazard, inconsistent, downright ugly communications."² Donald Trump's presidential campaign design was characterized by a defiance of modernist, systematized, or neutral aesthetics.

Beirut's response demonstrates how designers can maintain the simultaneous belief that their work is both value-free and capable of changing the world. This paradox enables graphic designers to

work outside the bounds of responsibility or ethics while still engaging in the fantasy of designer-as-saviour. The belief that the world needs designers to intervene, or that designers have the unique ability to do so, functions as a form of paternalism.

29. Hartnett, John-Patrick. "Eye Magazine | Feature | The Programmed Designer." Eye Magazine, 2017, www.eyemagazine.com/feature/article/the-programmed-designer.

I note this about Beirut and the branding of the Clinton campaign because I also struggle with the fraught role of the designer. What does the graphic designer gain and what do they lose from all of this?

In addition to the chance to play the savior or perform solutionism, the graphic designer gains authority, legitimacy, and respect. It's my experience that this is a thin facade traded for conforming to systematization or ceding control over technologies of production to corporations. Over time, this results in graphic designers being increasingly dependent on corporate controlled tools and the politics or logic that they are embedded with. This is exemplified by Adobe software and Apple computers, which are synonymous with the industry and position of the graphic designer. In "The Programmed Designer," John-Patrick Hartnett notes how Adobe has a powerful incentive for maintaining this relationship, writing:

We might consider graphic designers as labourers whose work generates surplus value for Apple and Adobe. It is therefore in their interests to exert 'mechanisms of control' over the practices of designers, which ultimately impinge on the autonomy and agency of individuals designing.²⁹

One example Hartnett gives of this dynamic is Adobe's shift from selling software to leasing it through a cloud subscription service. The service prevents graphic designers from owning their tools, locks them in as perpetual consumers, and further obscures how the technologies function. For example, if I choose to continue to subscribe to Adobe Suite following graduation, I will have to pay \$52.99 a month or \$599.88 a year. Hartnett suggests investing in open source or alternative softwares or hardware as a model for resistance.

EXPLAINABILITY CRISIS: EMBRACING OPACITY AS AN APPROACH TO ACCELERATING COMPLEXITY

The accelerating complexity of science and technology has created an urgent demand for explanation and critique. These high stakes were captured in a debate that took place at Stanford in 2019 over the potential risks and benefits of artificial intelligence. The debate's participants included Yuval Noah Harari, a historian, philosopher, and bestselling author, and Fei-Fei Li, an

→ See explorations of open source and alternative software in the project documentation for *Peer, Peer, Peer, and Peer* on page 78

artificial intelligence pioneer and current co-director of Stanford's Human-Centered AI Institute, along with moderator Nicholas Thompson, the editor-in-chief of Wired magazine. In the debate, Harari outlined what he sees as an impending AI crisis in which technology surpasses or hacks humanity by overriding their free will.³⁰ Li countered with the argument that AI will enhance or benefit humanity and the debate began to center around the issue of explainability and the question of whether the risks of AI can be offset if the technologies are adequately explained to the public.

Harari argued that even if the technology could be explained, the explanation would be so complex that it would be incomprehensible. He uses the example of a bank loan, suggesting that if a bank could provide all the statistical calculations an AI might use to arrive at the decision of denying a customer a loan, the customer wouldn't be able to comprehend it.

Li responded to this by suggesting that AI could be used to explain itself, before turning to Thompson to say "that's why we have people like Nick, the storyteller, to explain... that's the job of the society collectively, to explain the complex science."³⁰

This exchange reveals a key issue. If technology like artificial intelligence poses serious risks, then there is an urgent need to find ways to relate to, critique, or explain it. The issue of explainability produced, in part, by the phenomenon of black boxing, which the philosopher Bruno Latour describes as: "the way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque and obscure they become."³¹

Faced with the challenge of explaining increasingly complex material, Li suggests that the key is to open the box, and to reveal its contents to the public, but Harari demonstrates that this only produces more complexity.

When examining systems of technological control, I've experienced this dilemma repeatedly. In researching Facebook's global network in-

30. Stanford. "Yuval Noah Harari in Conversation with Fei-Fei Li, Moderated by Nicholas Thompson." YouTube, uploaded by Stanford, 29 Apr. 2019, www.youtube.com/watch?v=b91TfgH0Xzw.

31. Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. 1st ed., Harvard University Press, 1999.

frastructure, I tried to unpack all of the layers of opacity by collecting as much information as possible. I sourced documents from state and public archives and and reverse engineering Facebook's codenames and subsidiaries. In the end, I was left with a huge archive of documents. I printed all of these examples and laid them on a long table in the studio, organized into groups of stacks that each represent a different datacenter, subsea fiber optic cable, or satellite.

In theory, these stacks of documents contained all the information someone would need to understand Facebook's infrastructure projects. They included thousands of pages of

meeting minutes, environmental impact reports, project applications, community feedback forms, architectural plans, legal documents, and other bureaucratic or technical empha. In displaying them, I was trying to understand what the process of researching these sites had generated, and what an audience might gain from it. The outcome turned out to be that there were so many pages of mundane documents about mundane things, that very few people outside of the highly motivated reader or the interested MFA student would be willing to sort through, read, or analyze any or all of them.

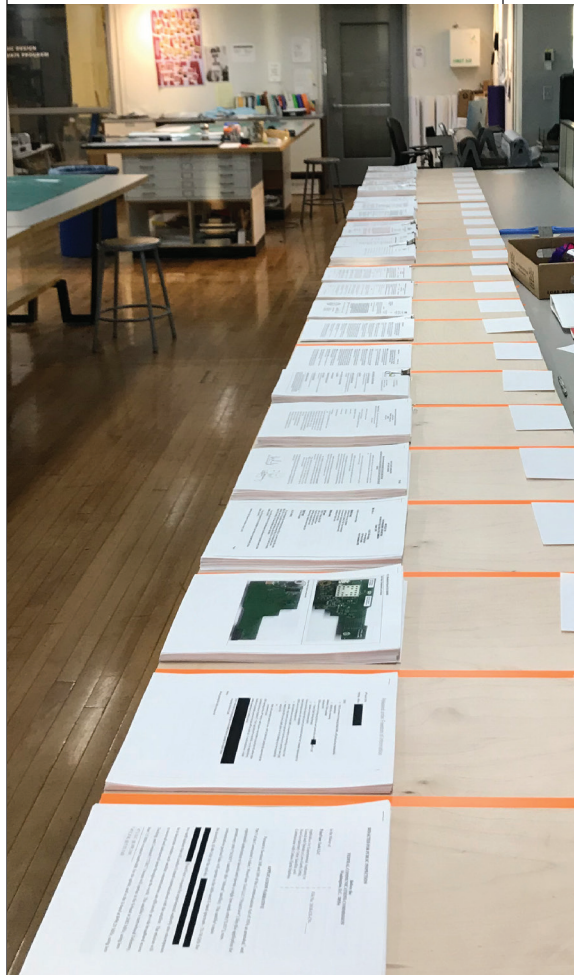
I wasn't facilitating understanding, I was producing a new form of opacity. I had opened the black box only to encounter the complexity within. The research and documents still have value. The project, for example, points to the material reality of a company like Facebook and demonstrates the bureaucratic and complex ways in which it exerts

power. In the hands of an interested audience, the information found in the stacks could help communities confronted by a corporation like Facebook develop context or tactics. Still, I was concerned about the question of whether there was a way to solve the problem of opacity without reproducing its logic.

EMBRACING OPACITY: A PROCESS OF JETTISONING THE FRAME

The answer might be to abandon solving it at all. Solutionism is, after all, a characteristic of the politics of transparency. An alternative would be to embrace opacity as a starting point. What type of relationships would this produce? How would it change the role and process of the graphic designer?

Transparency produces a frame, or a threshold, beyond which evidence and different terms for relating to tech corpora-



Documents associated with each of Facebook's network infrastructure sites from the project *By Every Name*. → See full project documentation on page 66

→ See project documentation for *By Every Name* on page 66

tions as well as scientific and technological complexity is accessible. By actively trying to dismantle the formal and conceptual foundations that construct a process and politics of transparency, it's possible to elevate this evidence or access these terms.

It's a misconception that opacity is a void or form of emptiness. It could actually be considered as the opposite: unknowledgeable vastness, complexity, or presence. The artist Zach Blas offers an interpretation based on Édouard Glissant's writing:

Glissant defines opacity as an alterity that is unquantifiable, a diversity that exceeds categories of identifiable difference. Opacity, therefore, exposes the limits of schemas of visibility, representation, and identity that prevent sufficient understanding of multiple perspectives of the world and its peoples.³²

I have found that when I stop trying to solve for opacity and it's unquantifiable diversity and complexity, it is possible to simply relate to it and the many perspectives it contains instead. What type of perspectives exist beyond the frame?

In the essay "Violence at the Threshold of Detectability", Eyal Weizman, the director of the research agency Forensic Architecture suggests that both violence and evidence often exist beyond the threshold. Using drone warfare as an example, he describes how the holes created by drone-launched missiles in Pakistan, Afghanistan, Yemen, Somalia, and Gaza intentionally defy legibility:

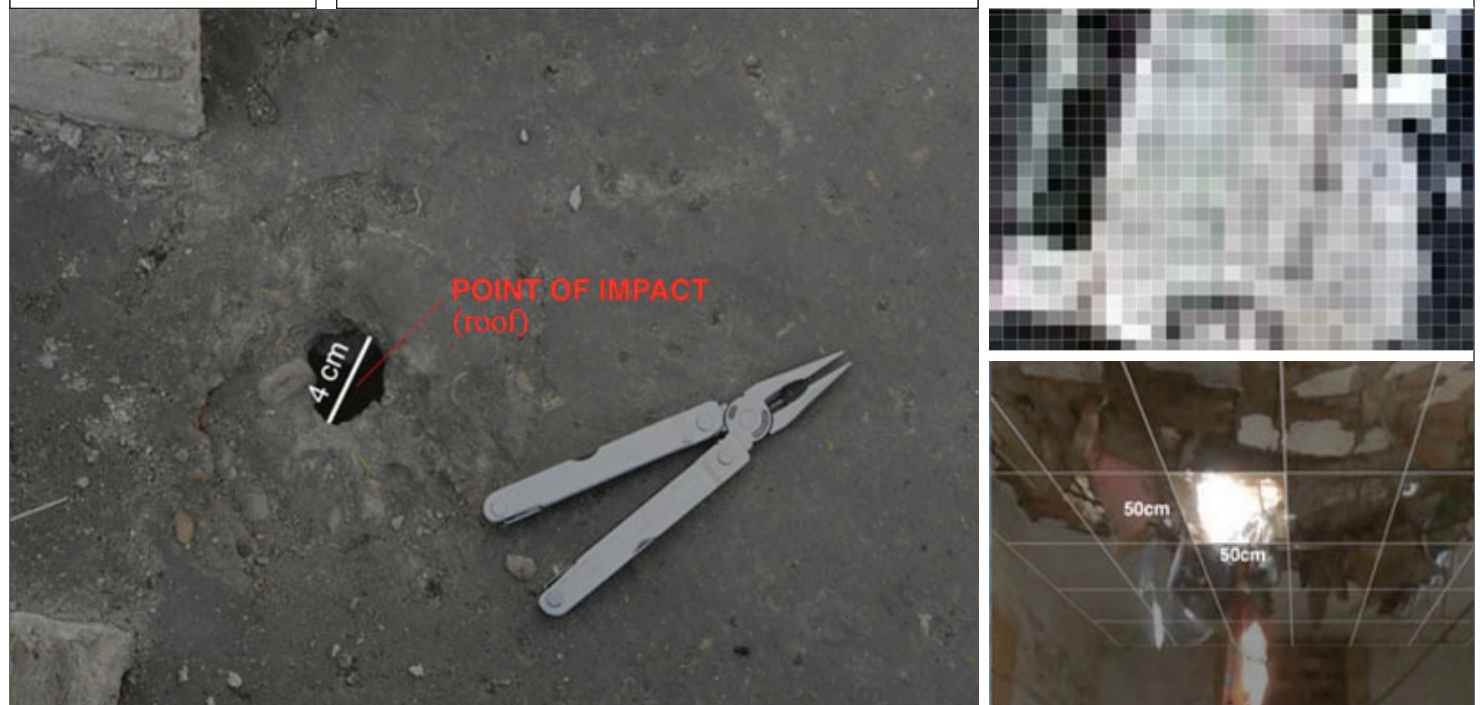
32. Blas, Zach, and Jacob Gaboury. "Biometrics and Opacity: A Conversation." *Camera Obscura: Feminism, Culture, and Media Studies*, vol. 31, no. 2 92, 2016, pp. 155-65. Crossref, doi:10.1215/02705346-3592510.

33. Weizman, Eyal. "Violence at the Threshold of Detectability." *Journal #64 April 2015 - e-Flux*, 2015, www.e-flux.com/journal/64/60861/violence-at-the-threshold-of-detectability.

34. Weizman, Eyal. "Violence at the Threshold of Detectability."

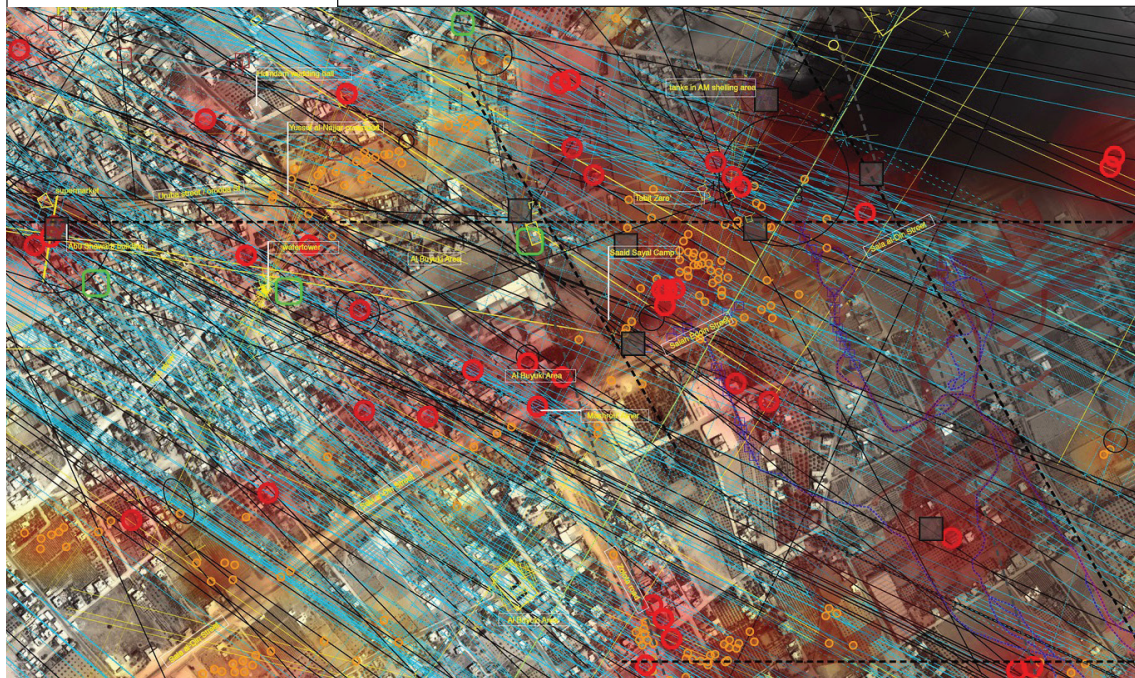
Below Left: An example of a hole left by a drone missile strike, measuring in smaller than the scale of single pixel in satellite imagery. Right Top: A satellite image depicting the roof with a larger hole. One of the pixels in this image contains a point of impact. Right Left: An image of a point of impact from inside a building.

Seen from above, the hole in the roof is the only visible trace that the building was attacked by drones. But this hole, and the violence it evidences, are also at the threshold of detectability. This is because the size of the hole that a missile makes in a roof is smaller than that of a single pixel in the resolution to which publicly available satellite images are degraded.³⁴



Weizman and Forensic Architecture advocate for shifting this threshold in order to hold the perpetrators of violence accountable. In order to accomplish this, Forensic Architecture mounts investigations that often incorporate the accumulation of many perspectives and frames. The organization works with communities to generate evidence that destabilizes the state's or other's violent narrative or construction of events. This process often involves collecting images, audio, video, and other data from a variety of perspectives that would have been otherwise excluded or ignored. These materials can then be used to construct new evidence, which challenge the authoritative account of events by expanding the frame of what is considered evidence.

Forensic Architecture's process provides a model for designing in opposition to the construction of transparency. It demonstrates the possibility of designing at the threshold, resisting objective presentation by always shifting, reorienting, and jettisoning toward additional perspectives. This will not escape the frame and it's politics, but it may blur the edges, destabilizing authoritative representations and the actors they benefit while creating space for suppressed or hidden evidence.



An image from one of Forensic Architecture's investigations, mapping many lines of perspective at once.

Designing at threshold requires a different approach than designing with the goal of enacting transparency. When working a graphic designer at a commercial studio, my design process involved a narrowing and stabilizing of the representational frame. I would receive research done by an in-house market-

ing team and channel it into carefully rendered abstractions. This was an easily systemized, seemingly objective process that produced consistent results. It was profitable for the agency and benefited the bottom line of clients. I found it to be an easy and comfortable way to design.

When I applied this process toward a critique or explanation of technological complexity, it only produced more opacity. I encountered a similar phenomenon while researching the U.S. media's analysis of Mark Zuckerberg facial expressions during congressional trials as part of the project *Looking at Granite*. My initial process was an attempt to exert a politics of transparency, to see if it was possible to somehow make Zuckerberg's face a legible site for analysis or interpretation. In doing so, I was also reproducing the logic and tactics of the systems I was attempting to understand and critique. As part of its business model, Facebook collects user data, including images of user's faces, and uses AI models that empower the corporation to detect, sort, and read faces. It wasn't until I abandoned this process and began to seek new lenses and perspectives that I was able to find any productive ground to relate to Facebook or Zuckerberg's role within the corporation.

→ See project documentation for *Looking at Granite* on page 56



This alternative process involved zooming out towards the corporation's sprawling global network infrastructure. By shifting the frame away from the veneer of Silicon Valley tech culture and towards other thresholds, I encountered the cryptic codenames and subsidiaries that Facebook often operates under to shield their infrastructure projects from public scrutiny. These, in turn, lead to the discovery of documents detailing previously obscured behavior in public and state archives. It produced evidence of Facebook's pattern of extractive and destructive relationships with communities. It also led to narratives of community resistance, resilience, and care.

Mark Zuckerberg's face projected in grad studio during the research process of *Looking at Granite*. → See full project documentation on page 56

In the essay “How to Map Nothing,” Dr. Shannon Mattern describes how opacity can obscure so much material evidence and labor:

“It might seem that anyone who could disregard all this labor and expertise and affective engagement and see nothingness is alarmingly self-absorbed and willfully oblivious, but we have to admit that essential systems—our public infrastructures and networks of care—are often designed to fade into the background. A lack of valorization and long history of underfunding such services; the prevalence of black-boxed, automated technologies that defy comprehension and repair; a tendency to prioritize innovation over upkeep—all contribute to the obscurity of vital but uncharismatic systems.”³⁶

36. Mattern, Shannon. “How to Map Nothing.” *Places Journal*, 23 Mar. 2021. placesjournal.org/article/how-to-map-nothing.

Despite their banality, infrastructures, documents, and local communities are often sites for the accumulation and negation of power and capital. They are also the material forms of evidence that corporations often seek to distance themselves from.

In my research into corporations like Facebook and Amazon, I have built archives of documents ranging from architectural plans to meeting minutes. They illustrate tactics of extraction, including targeting underfunded communities to receive optimal conditions for construction, resources, or tax incentives. Meeting minutes detail voices of protest, anger, and frustration from community members. FOIA requests and discrimination lawsuits shed light on civic battles as the companies clash with communities. The ever-growing list of code names, new subsidiaries, and contractual attempts by Amazon and Facebook to undermine journalists demonstrate a concerted attempt to deceive the public, both local and global. Broader narratives also emerge, including a race to control internet access, to increase processing capabilities, and to otherwise control markets, often in disregard of environmental and ethical implications.

Eyal Weizman describes how bureaucratic documents are deployed in Israel’s occupation of Palestine, writing that “the mundane elements of planning and architecture have become tactical tools and the means of dispossession.”

37. Wark, McKenzie. *Capital Is Dead: Is This Something Worse?* Reprint, Verso, 2021.

In Tierra del Mar, a small community on the coast of Oregon where Facebook is building subsea fiber optic cable landing sites, the document as tactical tool has had profound consequences for the local residents and environment. The project began with a letter sent by Oregon’s Governor Kate Brown inviting industries to take advantage of leniency in the coastal regulations. As Cameron La Follete, the Executive Director of the Oregon Coast Alliance describes in a conversation we had in April of 2021: “the Oregon governor basically wrote an open invitation to the delegates of a convention on submarine cables, making a point of the fact that we don’t have much regulatory superstructure. The submarine cable industry heard that, loud and clear.” Following Governor Brown’s invitation, the conflict between the community and Facebook has played out across regulatory, legal, bureaucratic, and other categories of documentation. The fight has included a legal contest over whether Facebook qualifies a utility, which was a requirement for the corporation to purchase the local land the project required.

All of these documents were distanced from the corporation by layers of obfuscation. In Tierra del Mar, for example, Facebook operates under the subsidiary Edge Cable Holdings LLC and has assigned the codename Jupiter to the subsea cable construction project.

Documents also are critical to the ownership of space, place, and even information. In *Capital is Dead*, McKenzie Wark describes the importance of the document as a site of capture:

→ Find my conversation with Cameron La Follete on page 108

“Information as a force of production calls into being particular relations of production and is at the same time formed by those relations. In classic Marxist style, one can look here at the evolution of legal forms. In the late twentieth century “intellectual property” emerged as almost an absolute private property right. One that makes the once separate and local property forms of patent, copyright, and trademark equivalent and exchangeable forms of private property. These forms need transnational legal enforcement, precisely because information is such a slippery and abstract thing.”³⁷

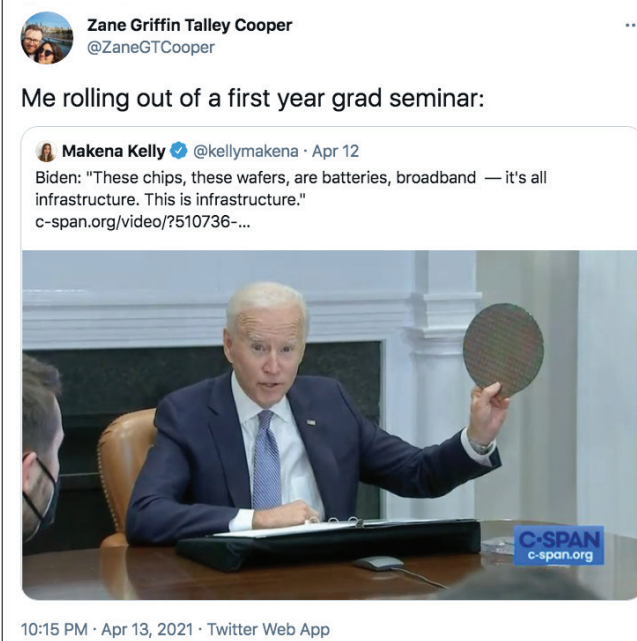
Contextualizing documents in this way positions them as an important piece of evidence that might otherwise be

38. Burrington, Ingrid. "The Infrastructural Power Beneath the Internet as We Know It." *The Reboot*, 12 May 2021, thereboot.com/the-infrastructural-power-beneath-the-internet-as-we-know-it.

excluded from understanding a corporation. The document allows for issues of capital and production to enter into the frame, creating space for critique based on these terms.

Similar to documents, infrastructures are another key site for the accumulation and production of value. When I use the term infrastructure, I am referring to my experience researching Amazon and Facebook's digital infrastructures as well Amazon's infrastructures of distribution. In the case of Facebook, this includes subsea fiber-optic cables that transfer data at high speeds between continents, sprawling processing centers where information is stored, parsed and sold, and mountain-top observatories that support experimental satellites designed to expand internet access to remote global regions. Amazon's infrastructure of distribution includes a global web of fulfillment and distribution facilities in which Amazon orders are processed, packaged, and distributed with brutal efficiency and speed.

The term infrastructure has a wide range of definitions, and can reference everything from a 480-foot dam, to software, to a microchip.



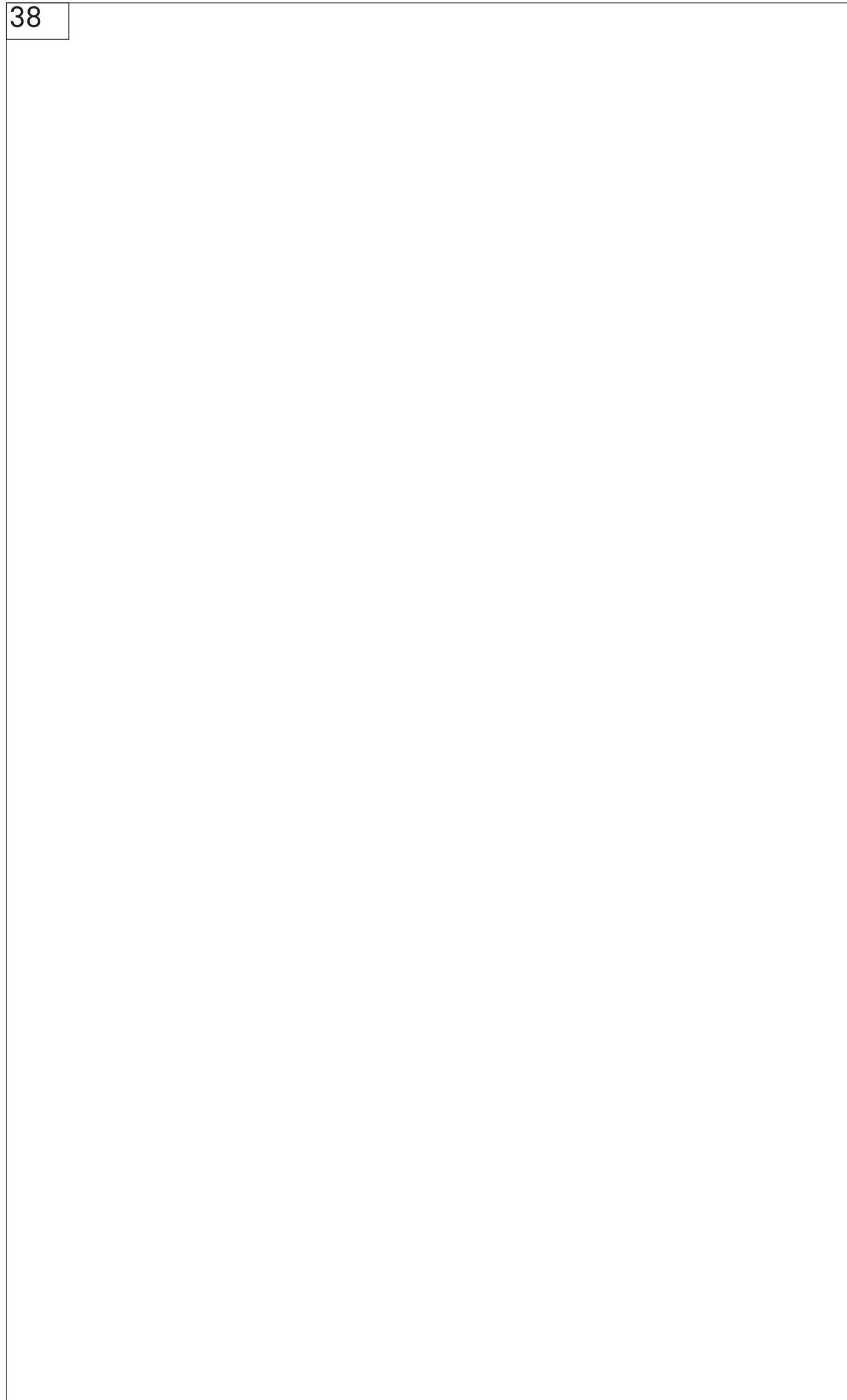
President Joe Biden demonstrating the complexity of the term "infrastructure."

I have found that it is useful to consider an exercise that Ingrid Burrington references our conversation on page 41 and in her essay "The Infrastructural Power Beneath the Internet as We Know It." Burrington suggests that when "reading anything by or about tech companies," replacing "the word "infrastructure" with "means of production."³⁸ This exercise is useful because it demonstrates that infrastructure, while a broad and complicated topic, is inextricable from the production of capital or value. It suggests that big tech companies are an accumulation of mundane structures of production that are susceptible to critique, reimagining, or sabotage. It's much easier to imagine a world without Amazon or Facebook when they are demystified or understood on these terms.

Both infrastructures and bureaucratic documents are forms of evidence that allow for a historical context. When a tech company is represented as inevitable, or as having emerged from a visionary CEO and not a specific history, they are divorced from the lineage of previous networks or companies, as well broader contexts of colonialism, imperialism, and capitalism. Shifting the threshold imbeds the old within the new.

Destabilizing the logic of graphic design and its common politics of transparency creates space for narratives of community resistance, organization, and resilience that might otherwise be flattened or left outside of the frame. Encountering this, and at times being in conversation or collaboration with people doing this work, has been a rewarding and hopeful aspect of my work in this graduate program. The possibilities are evident in the sophisticated and generous ways residents of Tierra del Mar have resisted Facebook's invasive presence on the coast of Oregon, the subversion of thepackman123 who defies the flattening or black-boxing of Amazon, and in the grassroots strategies of advocacy, protest, and care practiced by residents of Chandler, Arizona in response to Cyrus One's disruptive data center.

Embracing opacity not only destabilizes the type of representation the designer produces, it also destabilizes the position of the designer. Trying to shift my practice has been a halting, implicating, and often uncomfortable process. There is power and allure in being an objective observer, of rendering high resolution abstractions. The beauty of shifting the frame is that it has the potential of revealing the power dynamics between the observer and observed, to unlock more equal and common ground. I don't suggest this as a flattening or erasure of positionality, power, or identity. I have found the opposite has happened, that it is a process that sheds light on subjectivities. It's my hope that this could create space to collaborate with or engage with communities not as a form of paternalistic intervention, but from a messy, implicated and generative space. As I move toward this type of a practice, some remaining questions include: What would it look like to collaborate much more closely with a community? How can I produce an archive that contains multiple, flexible frames and perspectives? What are the best approaches to considering or handling different forms of evidence?



Something is Broken: A Conversation with Ingrid Burrington



Robert Smithson, *The Monuments of Passaic*
(*The Pumping Derrick*) (1967)

Ingrid Burrington is an artist who writes, makes maps, and tells jokes about places, politics, and the weird feelings people have about both. She's the author of *Networks of New York*, an illustrated field guide to urban internet infrastructure, and has previously written for *The Atlantic*, *The Nation*, *The Verge*, and other outlets. Her work has previously been supported by Eyebeam Art and Technology Center, the Center for Land Use Interpretation, and Rhizome. We spoke over Zoom on April 12, 2021.

This transcript has been edited for clarity and length.

WM A lot of my thesis work and research has revolved around network infrastructure and other infrastructures as an avenue to critique or understand tech platforms and the systems they are produced by. Sometimes, I find that people are surprised that I am so interested in a topic others might find boring or mundane. As someone who is well known for their work in the area of network infrastructure, among other topics, I'm curious what drew you into that world? And what, if anything, keeps you engaged?

IB I think the misunderstanding that infrastructure is boring is perpetuated by an assumption that infrastructure is a neutral entity. That it is something that doesn't necessarily bear politics, which is obviously not the case. The entire history of transportation design in the United States refutes that entirely, and the internet is no exception either. My interest was piqued in 2013, when a lot of the Edward Snowden documents were coming out.¹ I was coming out of being very deep in lefty activist circles in New York City. I was around Occupy Wall Street and people who were getting FBI visits for organizing marches. At the time, [the Snowden] stories had a big impact on that community. I remember getting very interested in the business model [of surveillance]. It's not that they wouldn't exist otherwise. It's just that after 9/11, the military contractor industry exploded, and tech opportunities also increased dramatically. Initially, I was interested in that. I was also interested in the visual vernacular around surveillance and surveillance technologies. When the Snowden story started dropping, it tended to have art attached to it

that was either images of the PowerPoints, which were themselves these sort of fascinating representations of the banality of infrastructure: It's just shitty clipart. I remember seeing a few projects at the time by graphic designers who were saying: "I made nicer slides." They missed the point. I don't really know what that intervention was going for. If it wasn't the banal slides, it was stock imagery of people in hoodies at laptops, or a close-up shot of some source code. A really popular one was just the jQuery source code, which I find fascinating: "Ah, yes, the core tool for sneaking around and spying on people: the toggle button."

WM (laughing) That's really funny.

IB I found a lot of that imagery really frustrating as I got more into learning about all of these companies, and the revolving door of people working in the intelligence community and then at these companies, as well as the broader ecosystem that perpetuated the need for more surveillance because you could keep making money. That world is actually quite aesthetically dull. I did a little project in 2013, where I went to take photographs of this office park that's next to the NSA. It's just defense contractors. It's Booz Allen Hamilton, Northrop Grumman, everyone you can think of is there. It's pretty ugly. It's got some really shitty public sculptures. I think of that work in the same vein as the stuff Robert Smithson was doing in the 1970s, his obsession with construction and the suburban environment as non-site. That standardization of architecture and landscape that lends itself to entropy. Through that, I got into network infrastructure, because the thing that happens when you're driving around Northern

¹ "In 2013, Snowden was hired by an NSA contractor, Booz Allen Hamilton, after previous employment with Dell and the CIA. Snowden says he gradually became disillusioned with the programs with which he was involved, and that he tried to raise his ethical concerns through internal channels but was ignored. On May 20, 2013, Snowden flew to Hong Kong after leaving his job at an NSA facility in Hawaii, and in early June he revealed thousands of classified NSA documents." Wikipedia contributors. "Edward Snowden." Wikipedia, 9 June 2013, en.wikipedia.org/wiki/Edward_Snowden

Virginia and suburban Maryland, looking for defense contractors, is that you also find data centers. There was also an interesting discourse in 2013 around whether you should find the state or corporate surveillance concerning. I don't think that's really the point. That's a question that people can address for themselves, but the question of how does power work, in terms of who owns all of the materials through which communication happens? That was my entry point.

I was looking at this thing that was being hyped as sexy and important, but not being explained in its banality, which heightened the sexy, spooky, story quality of it, but also made it easier for people to just stay scared. It sort of missed the point. The impact of the big drag-net surveillance stuff, it's there, and it's real, and it's fucked up, but ultimately, it's at best adjacent to the actual violence that the state perpetuates on a daily basis. The opportunities for the surveillance of things that are hidden in plain sight, like the content that you're just publicly posting, is also pretty high. A lot of this all bottoms out in who owns the most stuff. I'm working on an essay² where I'm experimenting with what happens when you replace the word infrastructure in tech press releases with "the means of production." It turns out that a lot of the time, it's pretty much the same.

WM That's really interesting!

IB It's more complicated than that, and the semantics of infrastructure is a very tedious subject, but I do think there is something interesting about the way that that word has been instrumentalized over the last 20 years. Right now it's really funny watching Democrats and Republicans argue about: is this infrastructure? Welcome to fucking media studies, guys.

WM I have really enjoyed your podcast, *RIP Corp*.³ One of my favorite episodes is about the retailer Claire's, and its journey through bankruptcy. There's a great moment, near the end of that episode, after you have unpacked all of this financial abstraction, where you concede that even you, as the host, have completely lost interest. That was so funny and relatable — the struggle of running up against banality or abstraction. How do you get around that problem and approach the issue of explainability? And do you think that this is an issue that's getting worse? That we're facing a world of accelerating abstraction and complexity?

IB One of the reasons I got past it was because that show is not just me, I have

producers. (laughing) There were other people who said, we have to finish this. I think it is the trick of being a good storyteller. It's about how you make something interesting rhetorically. Sometimes, I find that stuff a little bit annoying: "Behold, the seemingly ordinary building is actually a portal to the beyond." It can be a bit cheap, but I do think that there is value to the slightly Gonzo or absurdist approach.

When I was doing some of the defense contractor work, I was explicitly thinking of Smithson and *The Monuments of Passaic*, where he's writing about a construction site as a lost ruin of an ancient city. Taking it as far as: "I think I might be going insane as I gaze upon the Booz Allen Hamilton property." And sometimes it does feel that way. There is a big mindfuck in being in an environment that is so dull, and yet has so much capital. There's an Amazon Web Services (AWS) property that's next to a pet resort in Virginia. That's one of my favorites. There's a fucking dog hotel next door to a node in the apparatus of Jeff Bezos's wealth.

The banality can actually take the abstraction and ground it in a way that makes it much more enchanting,

because in fact, Jeff Bezos does not live in a magical hovercraft above all of us. He has properties. He lives in an apartment, or several apartments and probably some boats. The labor that happens is in fact, quite dull, and has to be situated amongst a bunch of other things.

In terms of whether that's going to get harder, I think it's just a persistent problem. I think that there's just new kinds of abstraction. There's a question of how deep any particular audience needs to go. With the private equity stuff, the depth to which somebody like Stephen Lerner, the organizer who I interviewed for that episode, goes is valuable, because his endgame is working with employees from retail and other sectors who are being fucked by private equity, and being able to meet them on their terms. Being able to understand what to argue about. Because if you don't understand the sleight of hand that happens in all of those financial abstractions, then you don't understand how that's going to trickle back to you. For a person who just needs to understand, why did this company go bankrupt? You can have a lighter touch. Just saying, "These are dumb games to make money out of

2. Ingrid published an essay on this topic following our conversation on April 22, 2021 that deals with these themes. It's titled "The Infrastructural Power Beneath the Internet as We Know It"

3. *RIP Corp* is a podcast that "tells the story of one failed business, or a business failure." The episode mentioned is "Pierced Ears to Private Equity: The Rise and Fall of Claire's." "Pierced Ears to Private Equity: The Rise and Fall of Claire's." *RIP Corp*, 2021, ripcorp.biz/episodes/pierced-ears-to-private-equity-the-rise-and-fall-of-claires.



money, and also make negative money, but it's real money. And all of this is fake" is probably going to suffice. (laughing) It just depends on the level of curiosity of your audience.

WM I recently interviewed Cameron La Follette, who is the executive director of the Oregon Coast Alliance, and we talked about how, in order to get the permits to build a subsea cable landing site in Tierra del Mar on the coast of Oregon, Facebook had to prove that they were a utility. Do you think the frame of a utility is useful for understanding companies like Google, Amazon, or Facebook? What do you think a productive frame might be?

IB I'm very ambivalent about the positioning of a utility or not. Partly because I think that it creates conditions where these companies are essentially too big to fail. When

Facebook talks about what they do as social infrastructure, it's comparing

them to a library or community center, and you wouldn't just shut down the library. The fact of the matter is, there was a world before Facebook that functioned. I have yet to hear a compelling reason why Facebook needs to keep existing. I have heard compelling, short-term reasons. But in the long term, I have yet to hear an argument that makes me think, "Yes, this should exist in perpetuity, forever." At the same time, I think that the initial impulse to label these companies as utilities emerged from a belief that we could flip them. Facebook called itself a social utility for a while, back in 2007, pre-IPO. danah boyd has a blog post deep in her personal website from 2010 on how Facebook is a social utility, so we should regulate it like

Robert Smithson, *The Monuments of Passaic (The Fountain Monument - Side View)* (1967). One of six photographs of unremarkable industrial landscapes in Passaic, New Jersey that accompanied an article published in *Artforum* in 1967.

one. Companies very quickly moved away from that, from the word utility and towards infrastructure, because infrastructure is nebulous enough to avoid regulation. I am also wary of the idea that we should just put the state in charge of the social media platforms. I don't think that the problem is that we need a different centralized owner. The very premise of how communications as utilities are governed is not really well thought out. I initially came to infrastructure-related language thinking that it was a useful way to start reframing the way that people thought about companies as beholden to a public. At this point, companies have absorbed that language and rhetoric effectively enough that it's actually kind of in their interest to continue to perpetuate terms like infrastructure for what they're doing.

WM One thing I didn't expect, and maybe this was naive, is how layered contemporary network infrastructure is. The idea of a company operating at the level of underground cables all the way up to satellite projects with lots of financial abstraction and other layers in between wasn't how I was thinking about a company like Facebook operating.

IB I think that this maybe goes back to the thing I was saying earlier about infrastructure versus means of production. The fact is, none of these companies could do what they're doing if they didn't have a lot of items. That sounds very video gamey.

One of the things that I worry about is how companies and people in tech treat the word infrastructure. On the one hand, there are softwares that support other softwares. I accept that there are infra-supra relationships all the way down the stack, but I also think that the proposition of building alternatives to these large companies, which have accrued so much power, absent an acknowledgment of all of the stuff you need, is a bit foolish.

Distributed peer-to-peer protocols are really cool. However, most people don't want to cache most of the network on their personal laptop, and most consumer hardware isn't designed for that. Most consumer broadband isn't designed for that either. It is in companies' interests to de-emphasize the stuff, or as they're emphasizing the stuff, to do so in a way that creates the narrative that they are being trustworthy and reliable rather than powerful. The mythos around Silicon Valley that you can just bootstrap yourself into making billions of dollars ignores that in order to be able to do that, you need a lot of computers. You need a lot of electricity. You need items. You need to accrue capital. It's not that this is surprising, it's just that it's not necessarily treated as the point of intervention.

WM That's a great way of framing things, focusing on all of the materiality, on all of the stuff. And maybe that links back to how narratives around infrastructure or tech companies often exclude the banal in favor of sexier but more reductive narratives.

IB The reason it's useful to make those distinctions is to understand what you want to change. Sometimes people will say infrastructure when they mean system. Sometimes the word infrastructure becomes a way of saying "a thing that people take for granted." Or "a thing that lots of people ignore but that needs to be understood as important." Far be it for me to say don't take things for granted that are boring, that's obviously my whole deal. I do think that understanding how something exists within state and capital dynamics is important. It informs your critique.

WM That's such a great point. I was reminded of some of some of your writing and its specific language following the recent news about an attempted bombing of Amazon Web Services data centers. It made me think of your article "Effortless Slippage," in which you write about the importance of "not only constructing alternative infrastructure, but mapping, sabotaging, and expropriating." How do you think about something like sabotage? How does that language inform your work or critique?

IB I think that there are interesting opportunities for very strategic sabotage of large platforms' infrastructure. A big, spectacular, blow-out is not actually strategic. In the long run, that will just lead to greater security theater around these spaces and is going to make them more inaccessible. And you'll probably just end up going to federal prison.

Sustained, small-scale annoyance is something that has a lot of interesting potential,

because the reason people use Facebook is that it's there, and it's reliable, and all of their friends are there. So if Facebook is unavailable for two hours one day, and then it's unavailable for four hours another day, if there's just these intermittent and frequent interruptions, people will inevitably think: I can't get to my support group. Or, I'm an admin on some obscure kind of cancer page and we really need to be able to support each other.

So I'm moving us to this other forum service. Or if you're an organizer and your activist calls to get people to come to protests are supposed to be happening on Facebook, then you're not going to reach people effectively if you can't get on this website, so maybe you make a mailing list or you're pounding the pavement instead. People will find other ways to do what they need to do. That's actually harmful to Facebook. Facebook becoming less convenient is actually the way to attack their authority and power because, if there are fewer people there, they cannot justify selling ads that will reach billions of eyeballs. I've described this to other people and they said that sounds like the plot of a very good YA novel.

WM (laughing) That would be a sophisticated YA novel.

IB (laughing) Ragtag, autonomous cells traveling the world quietly cutting cables. That's not a level of sophistication that I think a lot of people bring to sabotage. The AWS guy, he was almost right. He was so close, but then he really fucked it up. He didn't seem like a particularly smart dude, and kind of seemed like a bad person. I think he was one of the Capitol protest guys. That being said, I think that when it's the FBI selling you the C4, it's kind of shady to say you did a crime. You wouldn't have bought the C4 if an undercover agent hadn't been like: "Hi, I have C4." Not to mention that the FBI loses an opportunity. If they really wanted to, they could wait until this guy did find a supplier and then arrest the guy and the fucking supplier.

The language of sabotage and expropriation that I use in that essay, some of it is a deliberate provocation. What would a cooperatively owned Facebook be? Could it even function? Is it worth making that provocation just to get into the ins-and-outs of: what kind of internet you want to build? I've been thinking a lot about what a cooperative Amazon Web Services is? It's basically just Anarcho-syndicalism. Surprise, I invented a centuries-old concept! If it's a business to business thing, you would have all the companies pitch in to run a data center collectively. I think that there is a sort of resignation in a lot of the critique that assumes that Facebook just can, will, and maybe even must exist forever. It's boring, it's very short-sighted, and it's sort of sad.

WM Just the suggestion of sabotage points to the materiality of these systems. That they are in some ways in which they are constructed and malleable systems.

IB You'd still have to do a lot of it at scale for it to be meaningful. You don't actually

have to be a country to [sabotage]. You would have to be a country if you wanted to knock out everything simultaneously for an extended period of time. At that point, you're talking about multiple properties being destroyed in coordinated attacks. That's nation-state level shit.

WM One of the projects I am finishing up this semester is based on a subtle form of sabotage. It's inspired by a YouTube video of an engineer who figured out that if you shout in a datacenter too close to the server racks, it creates measurable performance issues. Something about that is funny to me. The idea that frustrated employees working in data centers could shout and accidentally sabotage something, even in a small way.

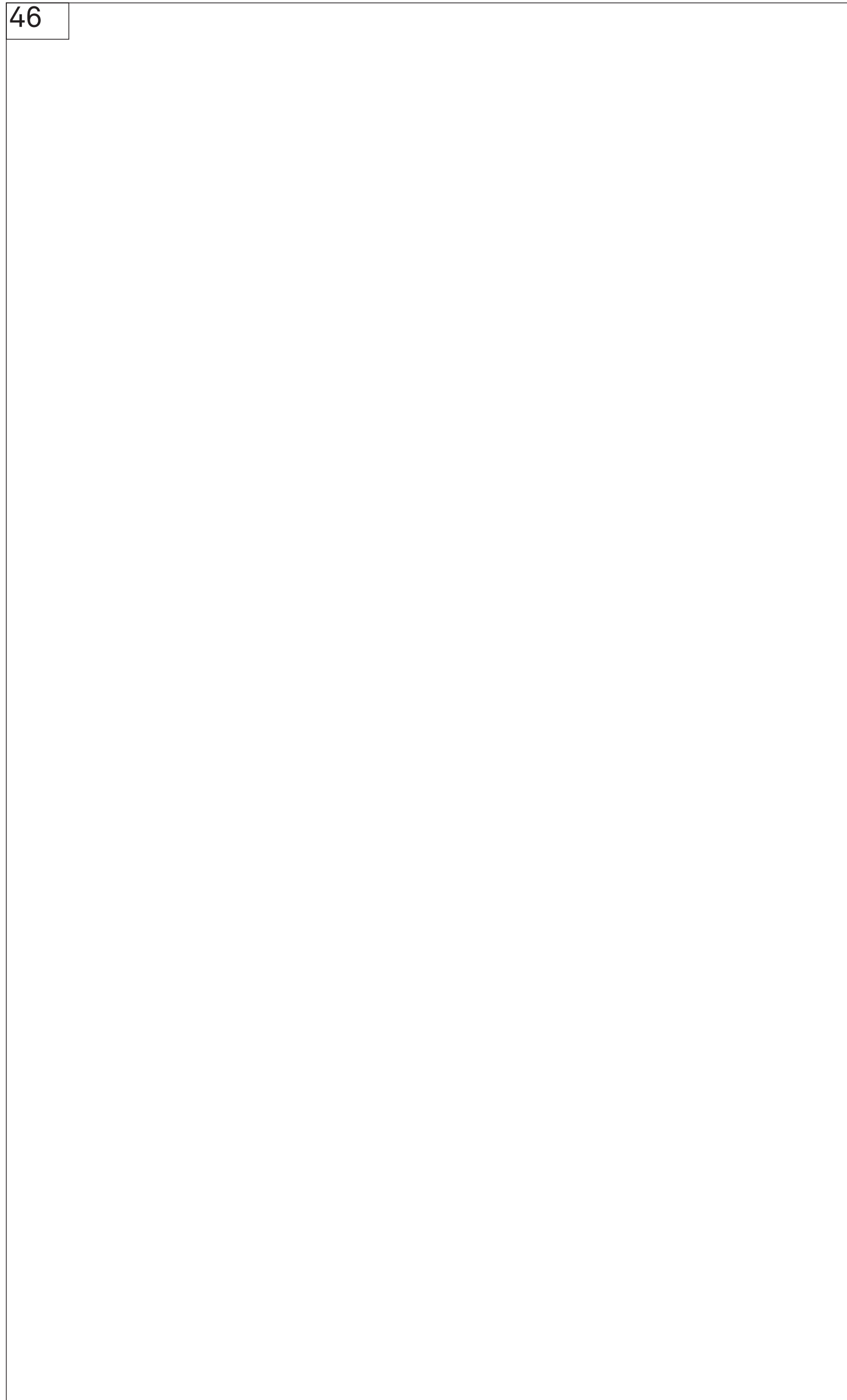
IB There's so much of the "work inside these companies to make them better [attitude]." Nah dog, work inside these companies and then shoot your shot.

This is no longer fixable. I think that point has been proven over and over again.

I just finished reading the Guardian profile of a woman who left Facebook and wrote a scathing goodbye letter and came forward as a whistleblower. I'm just like, man, I give this three days in the media cycle, and then everyone's going to forget. I don't know how many more whistles you can blow. I don't think that any of the improvements to this are going to happen at or in Facebook. That's not happening. If it hasn't happened now, I don't think it's gonna happen.

WM It's almost frustrating how difficult it can be to draw people's attention to network infrastructure and then there's a news story like the AWS bombing attempt, and suddenly, it's a front page news story.

IB Infrastructure is important when it's on fire. Another thing that drew me to the infrastructure stuff in 2014 or 2015, and kept me on that path, was a feeling that something is broken. It's not the buildings, but the way this is all going seems to not be working for a lot of people. Looking at how this whole thing actually works is one way to start to think about a diagnosis.



THE ILLUSTRATED SELF INSTRUCTOR IN SYMBOLICAL HEADS

For each picture you have, you have to sort out what the significance of the image is. And this isn't always super super complicated — it sometimes is. But the more I learn about it, it becomes much more complicated.

Excerpt from *The Illustrated Self-instructor in Symbolical Heads*

Early in the grad program, I made a project titled *The Illustrated Self-instructor in Symbolical Heads*. It is a 56 piece deck of cards and game manual created using text and imagery generated from machine learning (ML) models. The project is based on research I had been doing on a book from the early 1800's titled *The Illustrated Self-Instructor in Phrenology and Physiology*.

Phrenology and physiology are racist, pseudo-scientific practices predicated on the study of the shape of the head or face as indicators of character or intelligence. They were popular in the 18th and then 20th century, and directly implicated in racialized and gendered forms of violence and dispossession.

In this project, I was interested in how these practices were precursors to contemporary technologies of facial recognition and other forms of surveillance based on analyzing the face. Today, this technology relies on machine learning and artificial intelligence, as well as the collection of data to train and test models on.

The cards are made using runway.ml, which is an open source platform of pre-trained machine learning models. The text and imagery that appears on the card are produced with source material from *The Illustrated Self-Instructor in Phrenology and Physiology* that has been passed through ML models. The manual for playing the game is almost entirely generated from a similar, pre-built ML model. In making this project, I was interested in how linking the way phrenology and physiognomy enabled certain, fraught futures to how machine learning and forms of surveillance are shaping our present.

➤ One suit of the 56 card deck that makes up *The Illustrated Self-instructor in Symbolical Heads*.



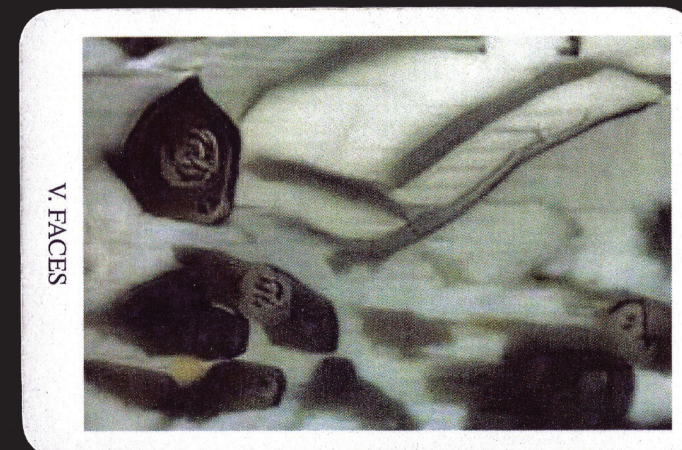
X. FACES



IV. FACES



ACE OF FACES



V. FACES



II. FACES



VI. FACES



III. FACES

Another example of a suit of cards within the deck.

The type and layout of manual references the design of the reference text, *The Illustrated Self-Instructor in Phrenology and Physiology*.

The instructions for the game turns participants attention toward the cards' use of image, symbol, and language. The text was generated using an ML model.

In addition to the design, the size of the instruction manual references the scale of the original *Illustrated Self-Instructor in Phrenology and Physiology* which was a small, hand-held text.



MANUAL

Manual is an installation that imagines a future in which normative gender roles have been reified by advancing technology. In this context, those who are assigned male at birth are unable to produce tears without specific training. *Manual* invites participants to experience this speculative scenario by watching training videos and reading the instructions on how to produce tears in the privacy of the built structure. The project imagines that this training has been commercialized, and the process is presented in a cold, corporate, and absurd fashion.

I made *Manual* while taking Design in the Posthuman Age, a class taught by Anastasiia Raina during my first semester at RISD. It was an exhausting and challenging project to produce. In order for the project to be included in an exhibition at the RISD design center, I had to construct the project off-site, deconstruct it for transport, and then reconstruct it in the gallery space — repeating this process in reverse after the exhibition closed. The wood panels were heavy and cumbersome, and the physically demanding process of moving and then assembling it felt like a metaphor for my experience of the performance of masculinity: an at times exhausting act of construction, reconstruction, and maintenance.

There's aspects of *Manual* that I am uncomfortable with. I worry that the way I treat gender expression

and the performance of emotion in the project may be extractive or reductive. I'm also uncomfortable with the position of power the project positions me in as a designer in relation to participants.

An unexpected outcome of the project was how positively my peers responded to the opacity and privacy that the structure offered. It was a contrast to the pervasive aesthetic of transparency found on campus: the glass walls in the RISD design studio, the open office working spaces, and the scarcity of spaces for privacy or rest.

Several students told me following the exhibition that they used the box as a refuge during the stressful installation process, sitting inside with the curtain closed to process their emotions, relax, or find a moment of respite. One student told me they cried inside, not from following the instructions, but from the stress of the exhibition installation and the pressure of the end of the semester.

The project's ability to produce opacity had a life that went beyond this project. When I took the deconstructed wood panels into the graphic design grad studio, my peers appropriated them to be used as privacy walls around their desks. This provided refuge from the open office layout of the studio. The panels were also used as tables in the project *Bound Together*. → See page 104 for documentation of *Bound Together*.

➤ *Manual* is a wood, boxy structure on wheels. It features a shower curtain for privacy. The opacity of the structure stands in stark contrast to the transparent glass of RISD's design studio. During the installation of the exhibit this image was taken at, students would frequently take breaks and sit inside the box, drawing the curtains closed.



The training video in *Manual* walks participants through physical exercises to facilitate the production of tears. Adam Fein demonstrates one technique, holding their eyes open until they begin to cry.

This project was influenced by working on *Looking at Granite* and a desire to subvert the stoic hyper-masculine facade of tech CEOs. Looking back, I wonder if that desire was reproducing the logic of extraction and transparency that characterize companies like Facebook or Amazon.

It's interesting to me how the project was appropriated in various ways by RISD students as a site of opacity, privacy, or respite.

The print manual provides instructions that parallel those demonstrated in the video.

Kit Son Lee shared this picture with me of Jeff Bezos before and after becoming the world's richest person. An example of how technology and wealth can reify normative masculinity.

Manual is also a good place for eating exhibition snacks.



LOOKING AT GRANITE

There's a deeper thing, that goes way, way back to the early modern period. It's about where the seat of the government is. In the era of kings and queens, government resided in the body of the monarch. Technology was the implement through which the monarch got the job done, but it was only an implement. The power to rule was in the blood of the monarch.

Fred Turner in conversation with Nora N. Khan, "Fred Turner: Silicon Valley Thinks Politics Doesn't Exist"

Looking at Granite is a publication that places Mark Zuckerberg's body in dialog with Facebook's corporate infrastructure, exploring historical ideas of power residing within the body of a monarch and attempting to understand Zuckerberg as a new kind of sovereign.

The book includes three categories, headquarters, centers, and breaking ground, which are used to divide the book into horizontal sections. This project emerged from research into the media's attempt to read Mark Zuckerberg's facial expression when the CEO appeared before the U.S. senate and house of representatives in 2018.

↗ A spread from *Looking at Granite* featuring a magnified image of Mark Zuckerberg's face. Kind of scary...



A spread with an image of Facebook's data center in Esbjerg, Denmark. Within the book's sections, the frame zooms in progressively with each spread. For example, in the "Centers" section, the first data center appears in distance and the frame zooms progressively until the final data center is depicted at close enough of a range to capture the building's detail.

An index of Facebook's global network of datacenters. I expanded this index in *By Every Name* to include subsea fiber optic cables, observatories, radios, experimental satellites, and other forms of network infrastructure.

The publication is divided into three horizontal sections. Headquarters, centers, and breaking ground.

In the process of making *Looking at Grantie*, I discovered that Facebook marks the start of construction at many of its infrastructure projects with a breaking ground ceremony.



GOLDEN SPIKE

My favorite part of looking for network infrastructure in America is really all the ghosts. Networks tend to follow networks, and telecommunications and transportation networks tend to end up piled on top of each other. The histories of these places isn't always immediately obvious, but it's there, forming a kind of infrastructural palimpsest, with new technologies to annihilate space and time inheriting the idealized promise and the political messiness of their predecessors.

Ingrid Burrington, "How Railroad History Shaped Internet History"

Golden Spike is a reproduction of the ceremonial breaking ground shovels used by Facebook in corporate rituals to mark the start of construction at its global network infrastructure projects. The work insists on an embodied, material relationship with a corporation often represented through digital interfaces or abstract data metaphors like the cloud. The work's title references the golden spikes used to mark the beginning geologic periods, such as the Anthropocene, as well as the spikes that were used to mark the completion of several American railroads.

The gold plaque mounted on the shovel is inscribed with twenty five codenames, each of which represents a project within Facebook's global network infrastructure that supports a business model built on extracting, processing, and analyzing data. The code names exist as one of the many layers of obfuscation that Facebook

deploys to shield their infrastructure projects from public scrutiny. The design of the plaque references the typography found on the golden spike that marked the completion of the first American transcontinental railroad.

Golden Spike works to situate Facebook within what Kathryn Yusoff describes as a "white, colonial geology," by linking its network infrastructure projects to a history of communication and transportation networks as well as imperial and colonial histories.

➤ The golden spike is a ceremonial 17.6-karat gold spike that was driven to join the rails of the First Transcontinental Railroad across the United States. It was engraved with the names of the railroad officers and directors. In recreating a Facebook breaking ground shovel, I referenced this spike, including by using similar typography on the shovel's plaque. Golden spike is a term that also references geologic markers that indicate the beginning or end of a geologic period. The placement of these spikes is significant and contested because it implicates who or what is responsible for the shift in geologic period.



"The last spike," a painting by Thomas Hill depicting the ceremony of the driving of the last spike of the transcontinental railroad in 1869. The managers and directors performing ceremonial labor rhymes with Facebook's contemporary breaking ground ceremonies.

Photographer Andrew J. Russell captured the iconic image of "East and West shaking Hands at Laying Last Rail" following the completion of the transcontinental railroad, a predecessor to contemporary network infrastructure.

Despite keeping as low a profile as possible about their network infrastructure projects, Facebook's breaking ground ceremonies are carefully branded and ritualized events. The corporation uses identical, branded shovels at ceremonies held around the world.



The Golden Spike is not an abstract spike; it is an inhuman instantiation that touches and ablates human and nonhuman flesh, inhuman materials and experiences.

— Kathryn Yusoff, *A Billion Black Anthropocenes or None*

A detail of the engraved plaque inscribed with all of Facebook's project codenames.

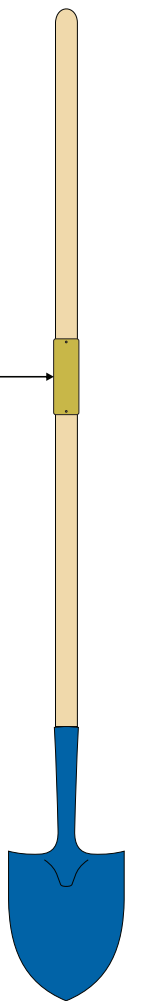
My order form for the engraved plaque.

My reproduction of Facebook's breaking ground shovel (before I attached the plaque).

When I was walking to studio with this shovel (before I painted it), a man stopped me and asked if I was going to breaking ground ceremony. It was a suprising and implicating interaction. A stranger assumed I would be more likely to be attending an obscure ceremony rather than gardening, digging, or performing manual labor.



5010037P
Large Blue Painted
Long Handle Ceremonial Shovel
Production Proof



*Albena, Aquila, Torngapak, Shadley, Norweg, Skened,
Tarnable, Saphelkay, Raven, Squelani, Scatpaul,
⊗ Qulus, Shavel, MacLauk, Wimmer, Seles, Ranuway,
Pawna, Gals, Madley, Simley, Maren, Mornadi, Fyrite*

Engraving Area:
5"W x 1.75"H

Laser Engraved - 6"W x 2"H Bright Gold Plate

Notes:

X _____ Date _____
Signature and Date required. By signing customer acknowledges this is the final Production Proof and that customer has read the accompanying Proof Approval Form, especially about shared responsibility of remake costs in the event of errors.

Estimate # 396155

1/12 - AJM: Initial Proof

CSR: CAH
PC: _____

For Internal Use Only

Amount: Email Stamp

For Internal Use Only

Amount Approval Stamp

BY EVERY NAME: JUPITER, MERMAID, MAREA, SIMBA, MALBEC, GOLD, ODENSE, RUNWAY, ECHO, WINNER, WOOL- HAWK, STARBELT, VENT- US, CATAPULT, RAVEN, TURNSTILE, STEEPLE- CHASE, MORNING HORNET ANTELOPE, TERRA- GRAPH, AQUILA, ATHENA

By Every Name is an installation and archive that indexes all of Facebook's major global network infrastructure sites. In the installation, the sites are represented by stacks of documents that are organized from lowest altitude (subsea cables) up to the highest (experimental low-earth orbit satellites). This mirrors how Facebook works across many vertically stacked layers of power, property, and extraction.

Facebook's network infrastructure includes subsea fiber-optic cables that transfer data at high speeds between continents, sprawling processing centers where information is stored, parsed and sold, and mountain-top observatories that support experimental satellites designed to expand internet access to remote global regions.

The documents offer an examination outside of the company's

preferred terms. They illustrate tactics of extraction, including targeting underfunded communities to receive optimal conditions for construction, resources, or tax incentives. Meeting minutes detail voices of protest, anger, and frustration from community members. FOIA requests and discrimination lawsuits shed light on civic battles as Facebook clashes with communities. The ever-growing list of code names, new subsidiaries, and contractual attempts by Facebook to undermine journalists demonstrate a concerted attempt to deceive the public, both local and global. Broader narratives also emerge, including Facebook's race to control internet access and increase processing capabilities, often in disregard of environmental and moral implications.

➤ A spreadsheet documenting all of Facebook's major network infrastructure projects along with the codenames and subsidiaries they operate under. Facebook works hard to distance themselves from infrastructure projects through the use of these layers of obfuscation. Codenames range in tone from militant to kitsch, and include "Project Simba" a subsea fiber optic cable constructed along the coast of Africa that was named after the character from *The Lion King*. Based on my research, there is no archive where these codenames and subsidiaries are collected in a single place. They function as keys, linking Facebook to its actions. Finding the codenames and subsidiaries required a tedious process of searching through public and state archives, news articles, and tax or other financial documents.

Code Name	Type	Location	Altitude	Type	Date Construction Started	LLC or Subsidiary	Contractors / Vendors
1 Athena	Single low-earth orbit, non-geostationary satellite	Observatories, Mount Wilson, California, USA	Observatories: 5,712'	Single low-earth orbit, non-geostationary satellite and two detached observatories	2016 - Present	PointView Tech LLC	Observatories: Sea West Enterprises S Lasers: Mynaric/Facebook Internal Res
2 Aquila	Experimental solar-powered stratospheric drone	Launch Site: New Mexico, USA	Satellite: Low-earth orbit	Experimental solar-powered stratospheric drone	2018 - 2019	Unknown (FLC Tech?)	
3 Terragraph	60-gigahertz small-cell radios for dense urban space	Various	Launch Site: 422'	60-gigahertz small-cell radios for dense urban space	2019	FLC Tech	Vendors: Cambium Networks, Common various
4 Antelope	Datacenter	Los Lunas, New Mexico, USA	Various	Datacenter	2016 - Present	Greater Kudu LLC	Fortis Construction
5 Morning Hornet	Datacenter	Georgia, Atlanta	4,856'	Datacenter	2018	Morning Hornet, LLC	?
6 Steeplechase	Datacenter	Eagle Mountain Utah	1,024'	Datacenter	2018	Greater Kudu LLC	Ames Construction
7 Turnstile	Datacenter	New Albany Ohio	1,050'	Datacenter	2017	Sidecat LLC	Various
8 Raven	Datacenter	Springfield, Nebraska	1,010'	Datacenter	2018 - Present	Raven Northbrook LLC	Fortis Construction
9 Sequelant	Datacenter	Alcoona, Polk County, Iowa, USA	995'	Datacenter	2019	Sculus, Inc	
10 Catapult	Datacenter	Alcoona, Polk County, Iowa, USA	995'	Datacenter	2013	Sculus, Inc	
11 Ventus	Datacenter	DeKalb, Illinois	879'	Datacenter	2020	Ventus Tech Services LLC	Mortenson
12 Starbelt	Datacenter	Huntsville, Alabama	600'	Datacenter	2018	Starbelt LLC	
13 Woolhawk	Datacenter	Gallatin, Tennessee	538'	Datacenter	2020	Woolhawk LLC	DDR Construction
14 Winner	Datacenter	Dallas, Texas, fort worth	430'	Datacenter	2018	Winner LLC	DDR Construction
15 Echo	Datacenter	Henrico County, Virginia	340'	Datacenter	2016	Scout Development LLC	
16 Runway	Datacenter	Meath County, Ireland	213'	Datacenter		Runways Information Services Limited (Runways)	
17 Odense	Datacenter	Odense, Denmark	43'	Datacenter	2016	Cassin Networks Aps	
18 Gold	Datacenter	Lulea, Sweden	20'	Datacenter	2018		DPR Construction / Fortis Construction
19 Malbec	Subsea fiber optic cable	Coast of Spain	Subsea	Subsea fiber optic cable	2020		
20 Simba	Subsea fiber optic cable	Coast of Africa	Subsea	Subsea fiber optic cable	2018		

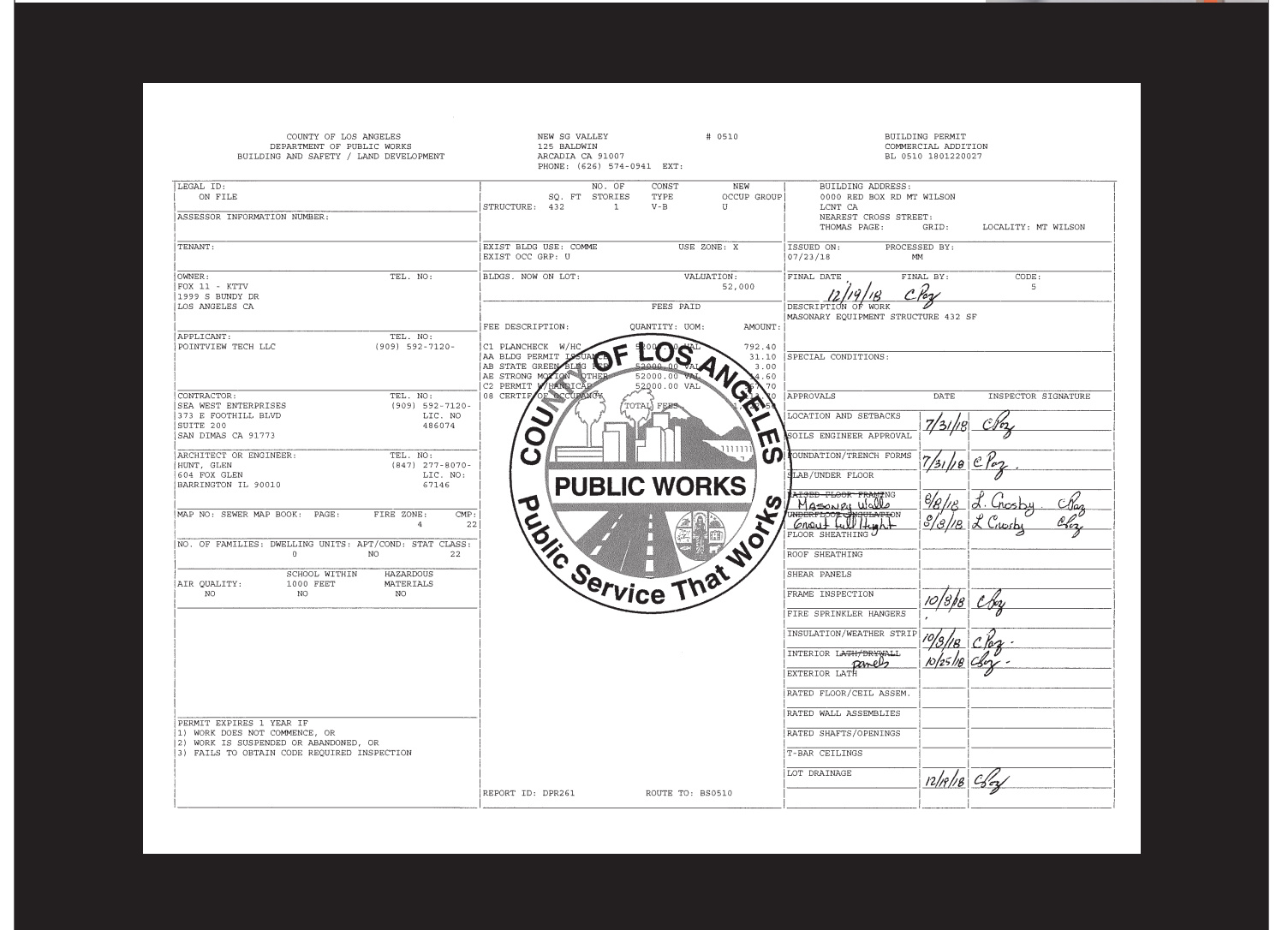
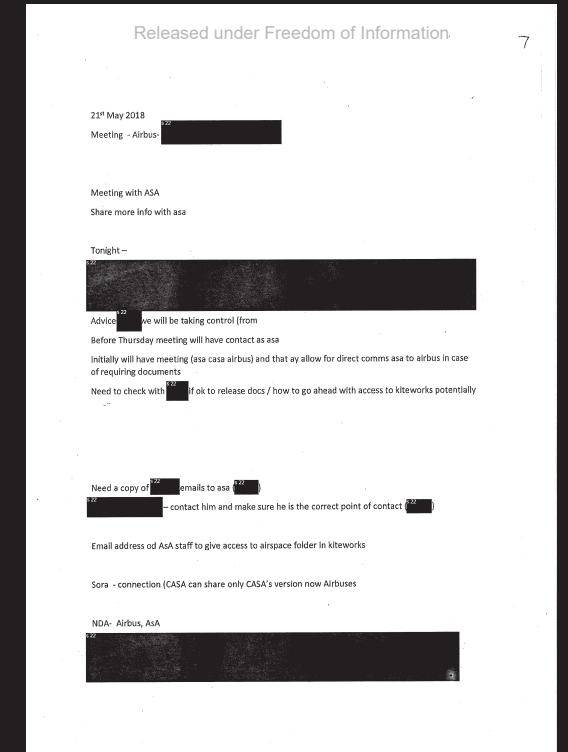
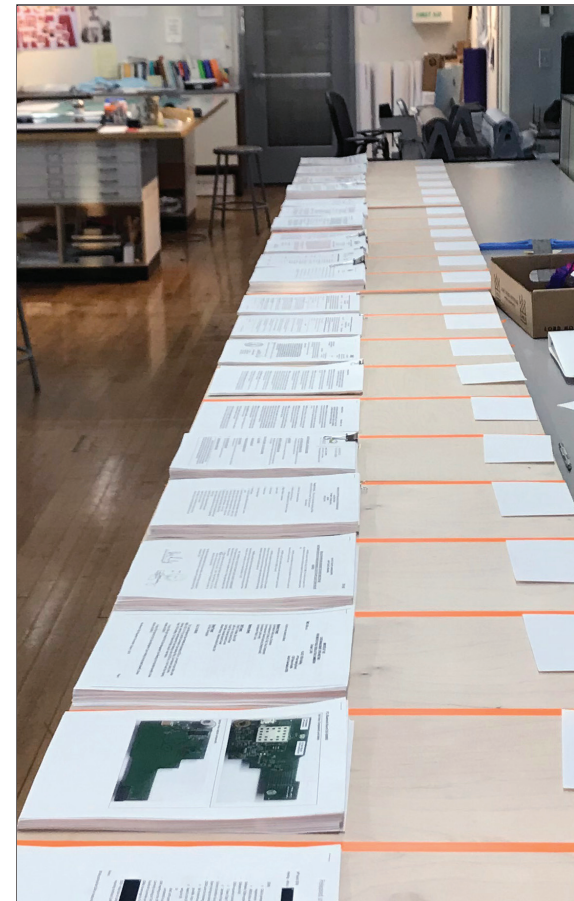
Each stack of documents in the row is associated with a different network infrastructure project.

Many of the documents feature redacted, fragmented, or otherwise partial accounts of events. Redaction is most common in documents related to satellite or drone use. Many of the documents featured in *By Every Name* were originally obtained by journalists representing various publications or institutions via Freedom of Information Act Requests. Facebook actively embraces several strategies to undermine journalists or others who seek documents or information about their infrastructure projects.

These measures include the use of code names and subsidiaries, but also more overt tactics such as building layers of contractual protection into project negotiations with cities or states that prevent or delay the inquires of journalists. As a result, Facebook's programs and projects are often discovered through the leak or discovery individual or even fragments of documents when they are finally obtained.

I highlighted and flagged what I thought were some of the key pieces of information were in the documents presented in the installation. Still, viewing the documents is an overwhelming experience.

A building permit that revealing Facebook's construction of its first laser communications systems designed to connect to satellites in orbit. The document is linked to Facebook via a subsidiary company called Pointview Tech LLC.



PLACEMENTS OF POWER: SEALED, SIGNED, EXHIBIT A, THIS PAGE LEFT INTENTIONALLY BLANK

Placements of Power is a series of four publications respectively titled *Sealed*, *Signed*, *Exhibit A*, and *This Page Left Intentionally Blank*. Each isolates a different formal element found in bureaucratic documents, forms, and ephemera. *Sealed* is an archive of seals or stamps that appear on documents, *Exhibit A* is archive of maps, images, receipts and other material that has been labeled as a supporting exhibit, *Signed* is an archive of signature pages, and *This Page Left Intentionally Blank* is an archive of pages left intentionally blank. The series is an attempt to understand how power and ownership are codified through design within bureaucratic documents.

The material for each publication is sourced from an ongoing archive of documents I built associated with each of Facebook's global network infrastructure projects. They have been collected from state and public archives and represent narratives of extraction, manipulation, and control. The documents also contain traces of community resistance or refusal.


The publications are designed using a standard 8.5 x 11" format. This creates a one-to-one relationship between each publication and its source material. A page from *Signed*, for example, will appear at the same scale as it did in its source document. The source material for the series isn't altered with the exception of *Sealed*, which I edited so that only the seals, still located in their original position on the page, are visible. Everything else on the page has been removed.

As a series, *Placements of Power* demonstrates the way power depends on and is displaced within bureaucratic documents and forms. The exception to this is *This Page left Intentionally Blank*, which represents a void or marked opacity instead of authority or information. It suggests refusal and a gesture of holding space. *This Page left Intentionally Blank* was one line of inquiry that drew me towards the theme of opacity as a site of possibility.

➤ A signature page associated with one of Facebook's data centers located in Fort Worth, Texas. It's worth noting that Facebook isn't mentioned anywhere explicitly in the document. A close reading reveals that Bobby Hollis is Facebook's director of global energy, environment, and site selection, that Menlo Park is where Facebook's headquarters are located, and that Winner LLC is a Facebook subsidiary.

The image in the background is an architectural rendering of the Fort Worth datacenter. If you google image search any data center, one of the top results will likely be a rendering like this one. These constructed images perpetuate a false sense of immateriality or simulation. Documents such as the one featured offer an alternative mode of engagement that I think is more productive. (I also think the person on a bike seems like a representational indulgence. Who rides their bike around a data center?)



CERTIFICATE OF INTERESTED PARTIES		FORM 1295		
		1 of 1		
Complete Nos. 1 - 4 and 6 if there are interested parties. Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.		OFFICE USE ONLY CERTIFICATION OF FILING		
1 Name of business entity filing form, and the city, state and country of the business entity's place of business. Winner LLC Menlo Park, CA United States		Certificate Number: 2019-461427		
2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed. City of Fort Worth		Date Filed: 03/07/2019		
		Date Acknowledged:		
3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract. n/a Chapter 380 Incentive Agreement				
4	Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
			Controlling	Intermediary
5 Check only if there is NO interested party. <input checked="" type="checkbox"/>				
6 UNSWORN DECLARATION My name is <u>BOBBY HOLLIS</u> , and my date of birth is <u>[REDACTED]</u> My address is <u>[REDACTED]</u> <u>MENLO PARK, CA, 94110, USA</u> <small>(street) (city) (state) (zip code) (country)</small> I declare under penalty of perjury that the foregoing is true and correct. Executed in <u>SAN MATEO</u> County, State of <u>CALIFORNIA</u> on the <u>11th</u> day of <u>MARCH</u> , 20 <u>19</u> . <small>(month) (year)</small>  Signature of authorized agent of contracting business entity (Declarant)				

Forms provided by Texas Ethics Commission

www.ethics.state.tx.us

Version V1.1.28ab6150

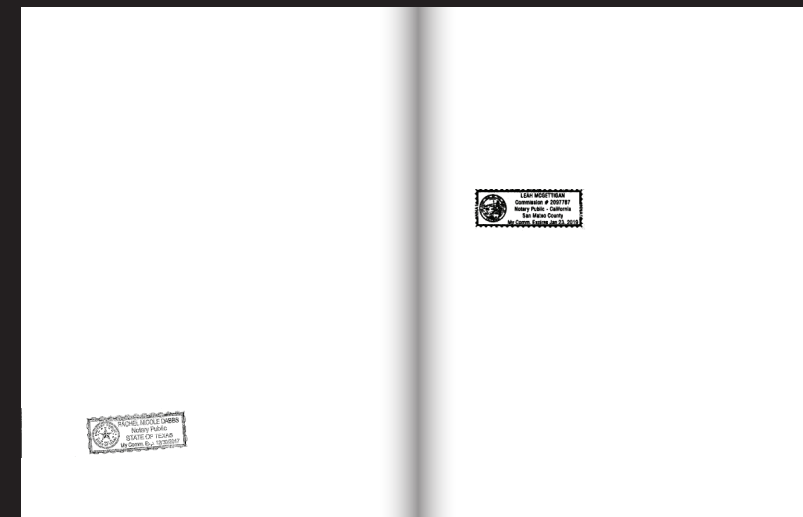


A spread from *Exhibit A* in which exhibits that are used to support other documentation tell a stories of space, place, and the ownership of land.

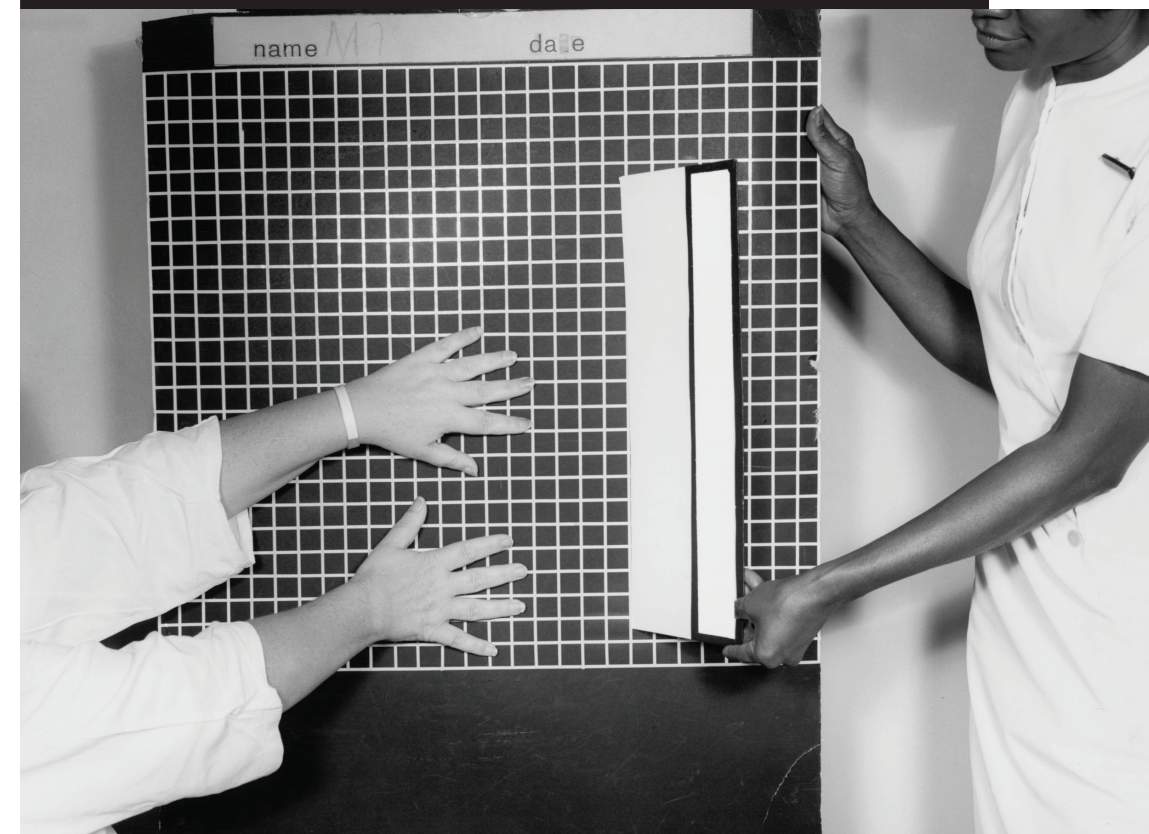
Isolated seals mark different parts of the page in a spread from *Sealed*.

An exampl of text used to mark a blank page in from *This Page Left Intentionally Blank*.

An image from Larry Sultan and Mike Mandel's photobook *Evidence*, which served as inspiration and reference for *Placements of Power*. *Evidence* is a collection of images sourced from the archives of corporations, government agencies, and research institutions. Divorced from their orginial context, the images are bizzare, provocative, and mysterious.



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GROUND TRUTH

Ground Truth is an online repository of publicly available lectures related to the material politics of technology, infrastructure, and geology. The website considers and tries to combat the ways in which digital interfaces can erase physical context by indexing the site's content to the location from which it was originally published or performed. To further emphasize the link between digital and physical space, the site tracks the coordinates of the cursor on the page.

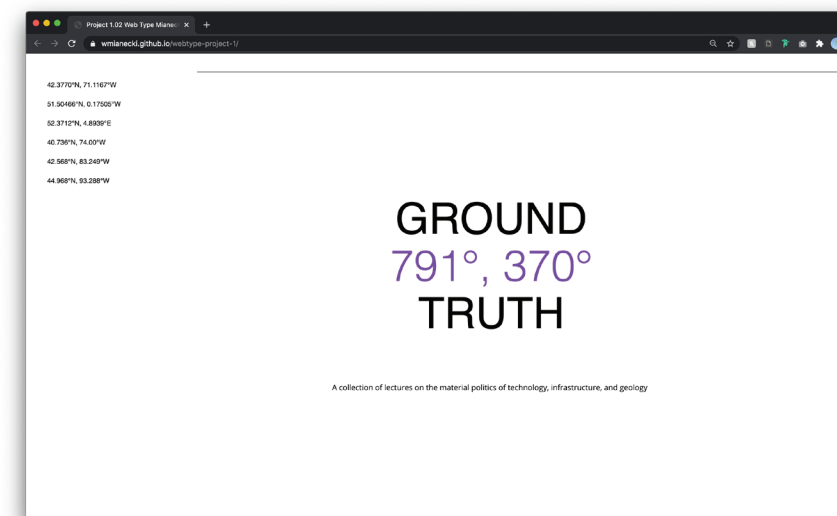
I created the site with the intent of collecting and sharing the resources that had been influential to my work and thinking related to the site's themes. I was also motivated by the social and physical restrictions of COVID-19 and its elimination of physical context in favor digital space.



I chose the title *Ground Truth* because I was interested in how material forms of evidence are obfuscated or erased by digital interfaces and metaphors.

The lectures featured on the site bridge the field of geography with other disciplines.

One of the lectures featured on the site was performed by artist Sondra Perry in 2016 at the Serpentine Gallery. During her lecture, Perry climbs a ladder on stage and sings along with the song "4th of July" by Soundgarden. It's awesome.



PEER, PEER, PEER, AND PEER

In digital life, you don't have to share — so much so that the word has a different meaning in digital culture.

Seth Frey, cognitive scientist and a professor of communications at U.C. Davis

In collaboration with Daphne Hsu, Kit Son Lee, and Lai Xu

Peer, Peer, Peer, and Peer (Peer³Peer) is a collaboratively conceived and maintained meeting space, archive and site for publishing. It is a decentralized peer-to-peer (P2P) platform hosted through Beaker Browser. Beaker utilizes individual users' computers as the web server rather than a central server located elsewhere.

Peer³Peer was created in response to our frustration with how fully remote learning during the COVID-19 pandemic had dramatically accelerated our dependence on software or hardware like Zoom, Slack, Google, Adobe, and Apple, all of which were embedded with politics, privacy concerns, and other defaults that were invasive or compromised our values. They were also poor substitutes for the dynamics of in-person learning. In developing the decentralized platform, we were able to be much more intentional about the relationship we wanted to have with our tools, to explore and prioritize how community, privacy, ritual, and individual preferences could be incorporated or accommodated.

↗ The lockscreen of the Peer³Peer meeting site. The images used in this documentation are redacted to protect the network of trust. Reach out for more information.

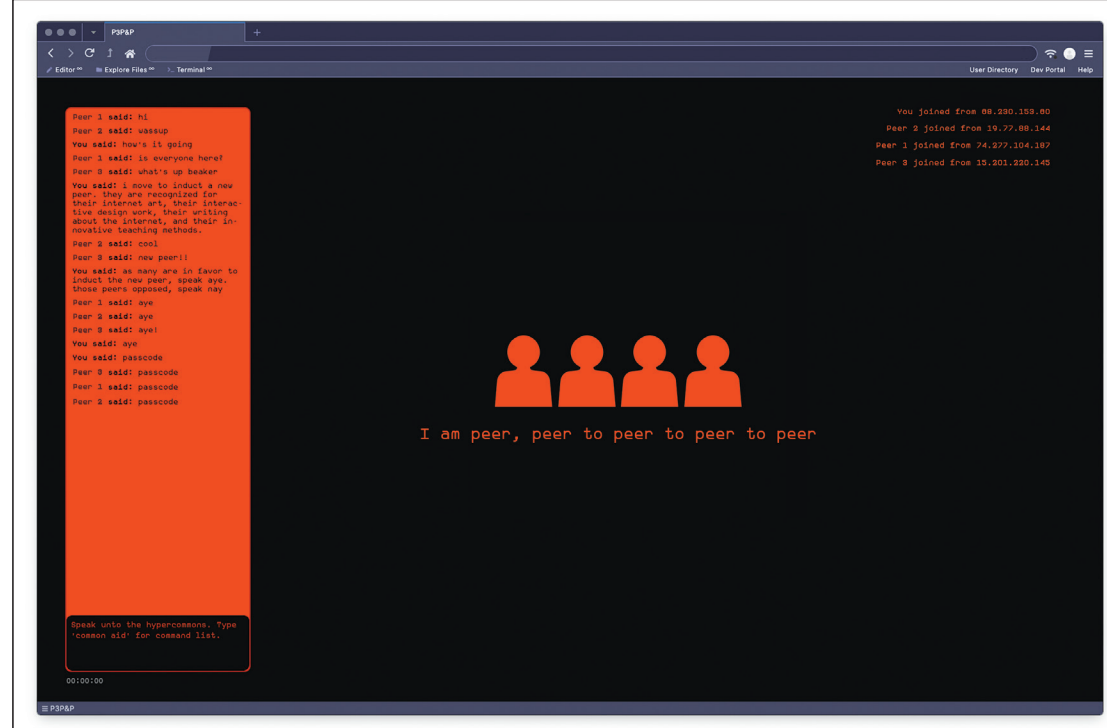
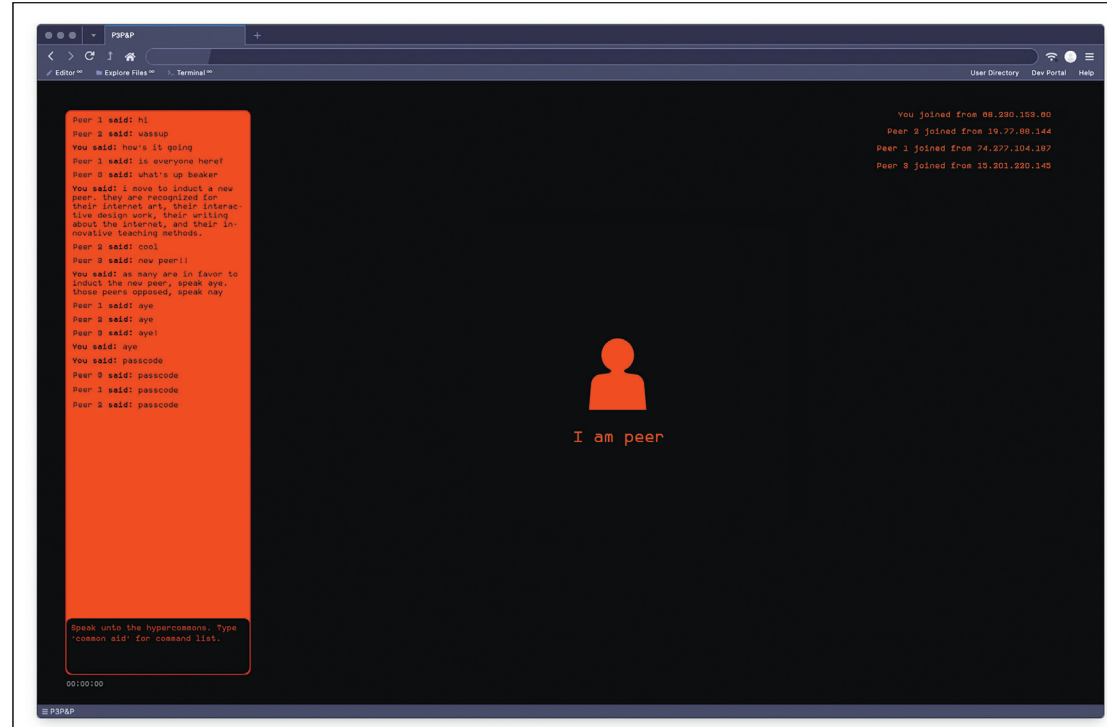


The lockscreen as members enter the passcode (replaced here with sample text).

The chat demonstrates the ritual procedures used to induct a new member to the site.

When all members enter the passcode, the Code is revealed.

The induction materials sent to new members. The package includes a Peerstone and a placement mat featuring the community litany.

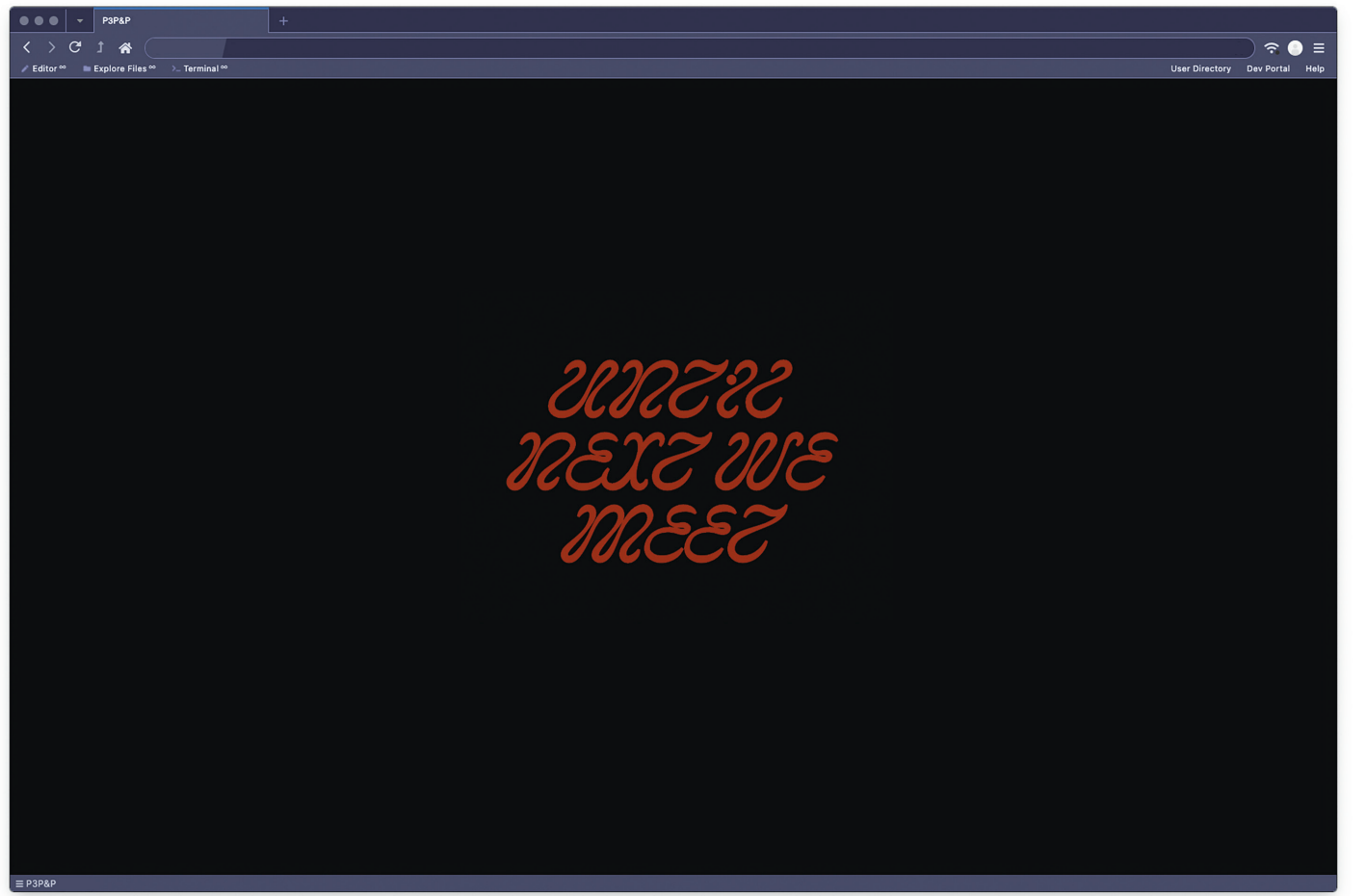
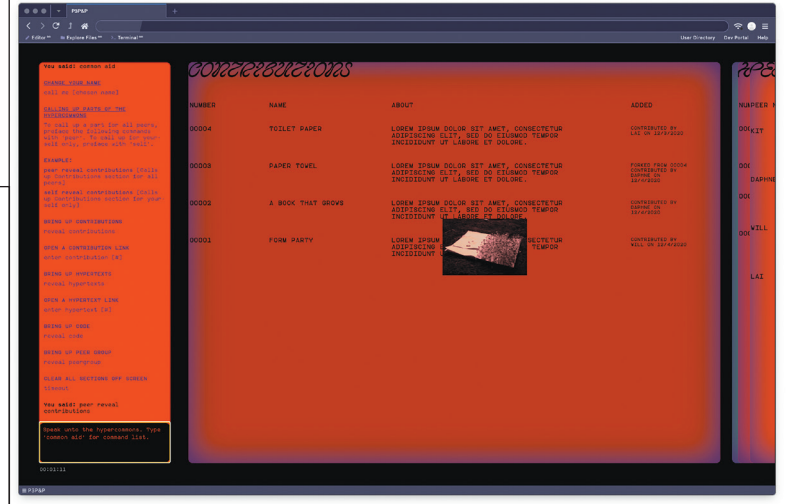


Sample views of the Peer directory.

Sample views of the Hypertext library of shared references. The chat includes a list of instructions for navigating the site, accessed with the text command "common aid."

Front and back of a Peerstone. Please inquire about induction for an explanation of the alphanumeric sequence.

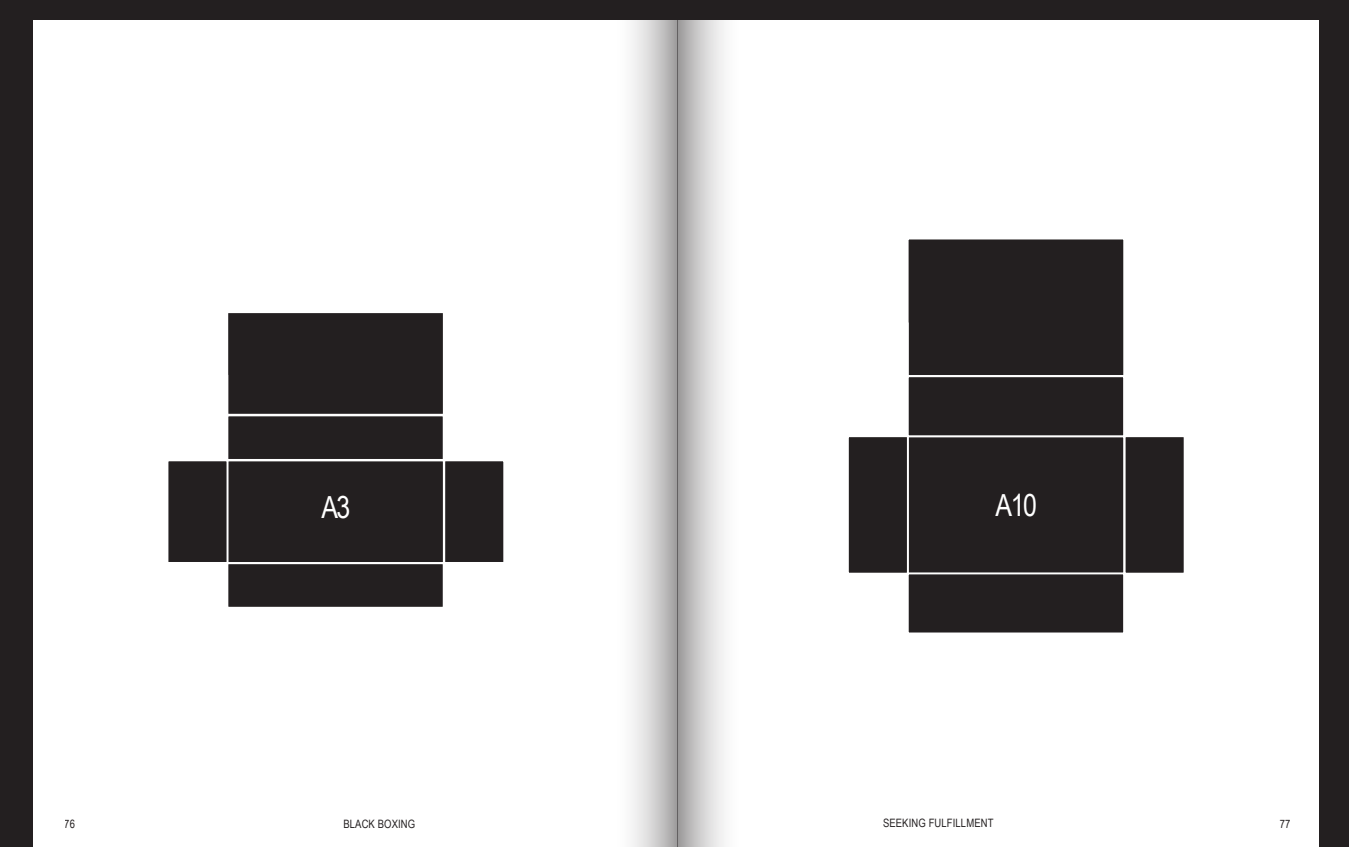
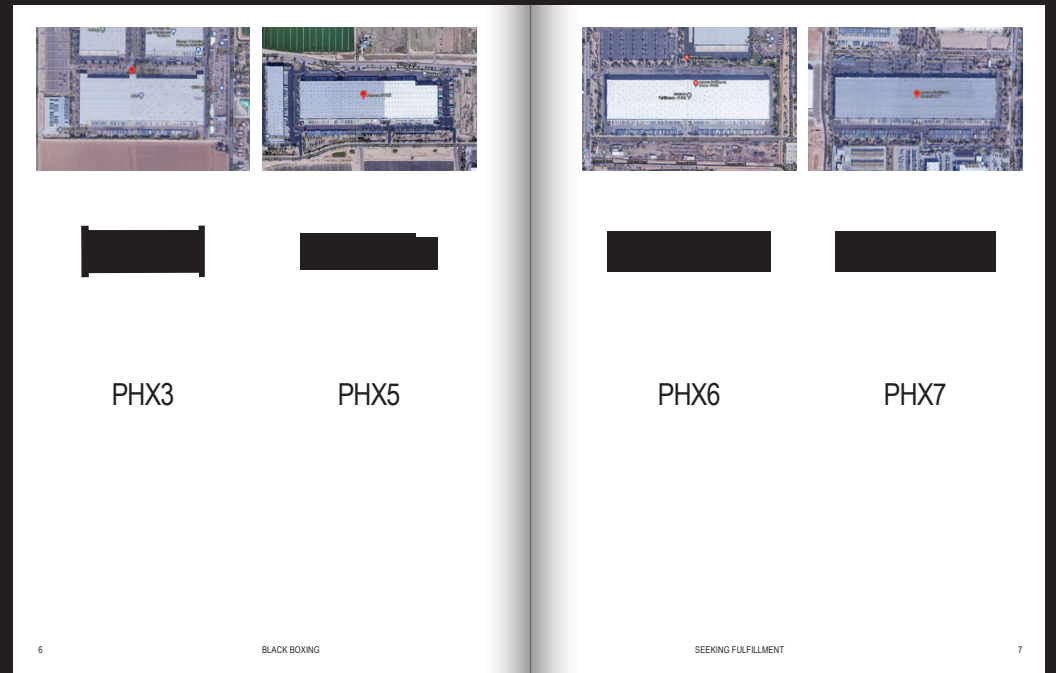
The meeting site at the end of the closing ritual.



Spreads from *Associates Must be Detailed and Efficient* depicting aerial views of fulfillment centers alongside black tracings of the buildings and their coded names.

Amazon names their fulfillment and distribution centers after the nearest airport, demonstrating the importance of shipping and logistics. This center is visibly located adjacent to an airstrip.

Flat patterns of the boxes Amazon workers assemble, pack, and fold under strenuous productivity standards and close surveillance.

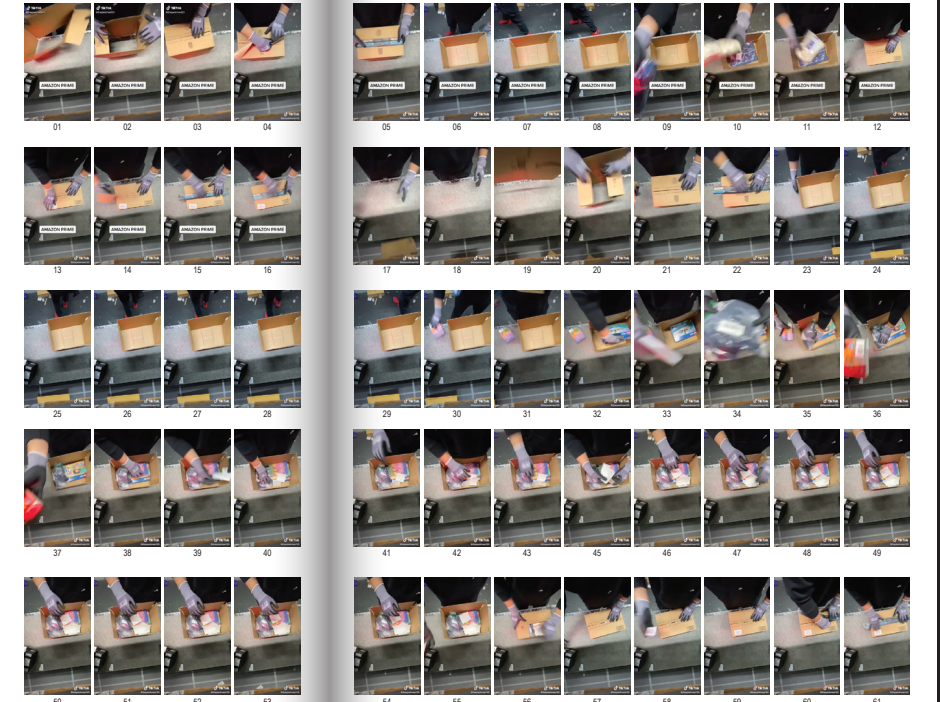


A spread depicting a grid of video stills from Packman123's TikTok videos.

Packman123's videos attract millions of views to witness mundane, repetitive labor.

A common comment on Packman123's videos is "I guess we are all here right now," or "everyone is here at 2am on a Friday night," referencing how TikTok's algorithmic feed can bring together strangers to see unexpected content. By recording their themselves at work, Packman123 brings viewers together to witness an often obscured form of labor.

2020.12.14



Source: TikTok
 Author: @thepackman123
 Views: 1.5 Million
 Text overlay: Prime
 Caption: These clips slow me down Brazil #tp #the-packman123 #amazon #packaging
 *at time of publication

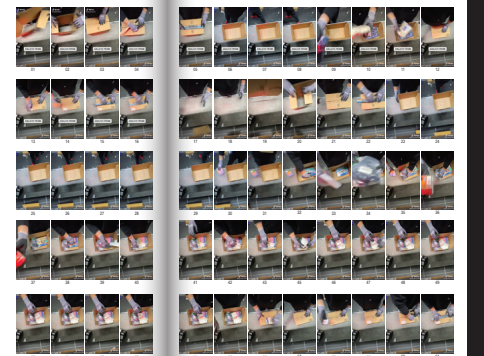
82

BLACK BOXING

SEEKING FULFILLMENT

83

2020.12.14



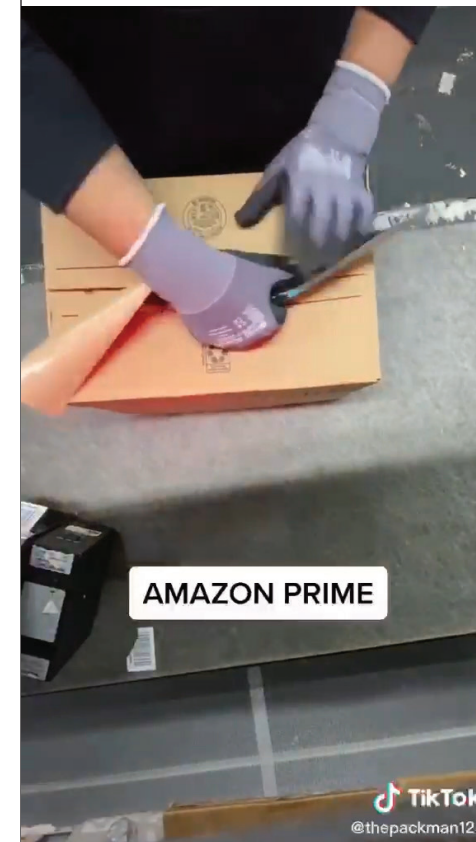
Source: TikTok
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 Views: 1.5 Million
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 Caption: These clips slow me down Brazil #tp #the-packman123 #amazon #packaging
 *at time of publication

82

BLACK BOXING

SEEKING FULFILLMENT

83



PEGASUS

Seen from above, the scale of the system is dizzying.

Matt Simon, "Inside the Amazon Warehouse Where Humans and Machines Become One"

Pegasus is a variable typeface based on Amazon's fleet of automated robots that share the same name. The robots are used to sort and shelf goods in the corporation's global fulfillment and distribution centers. The typeface appropriates the grid that the robots operate on, exploring the use of vertical perspective as a substrate and parameters for graphic design.

The typeface is paired with a digital type specimen that demonstrates the typeface's qualities. The text for the specimen is sourced from protest posters used by Amazon employees advocating for unionization. The variable components of *Pegasus* represent the fulfillment center's automated robots that glide through gridded

shelves, and they shift the messages in and out of legibility as the variables change. *Pegasus* explores how design's aerial orientation flattens, obscures, or challenges access to self-representation and the voices of those operating on the ground. It also considers how automation or systemitization might have similar effects.

The message's cyclical transition in and out of legibility also suggests space for resistance or sabotage. It creates a limited window in which the messages of protest are legible and within which it may be possible to organize, sabotage, or seize agency.

➤ The word "unionize" shifts in and out of legibility as the variable elements of the typeface change.

U N I O N I Z E

U N I O N I Z E

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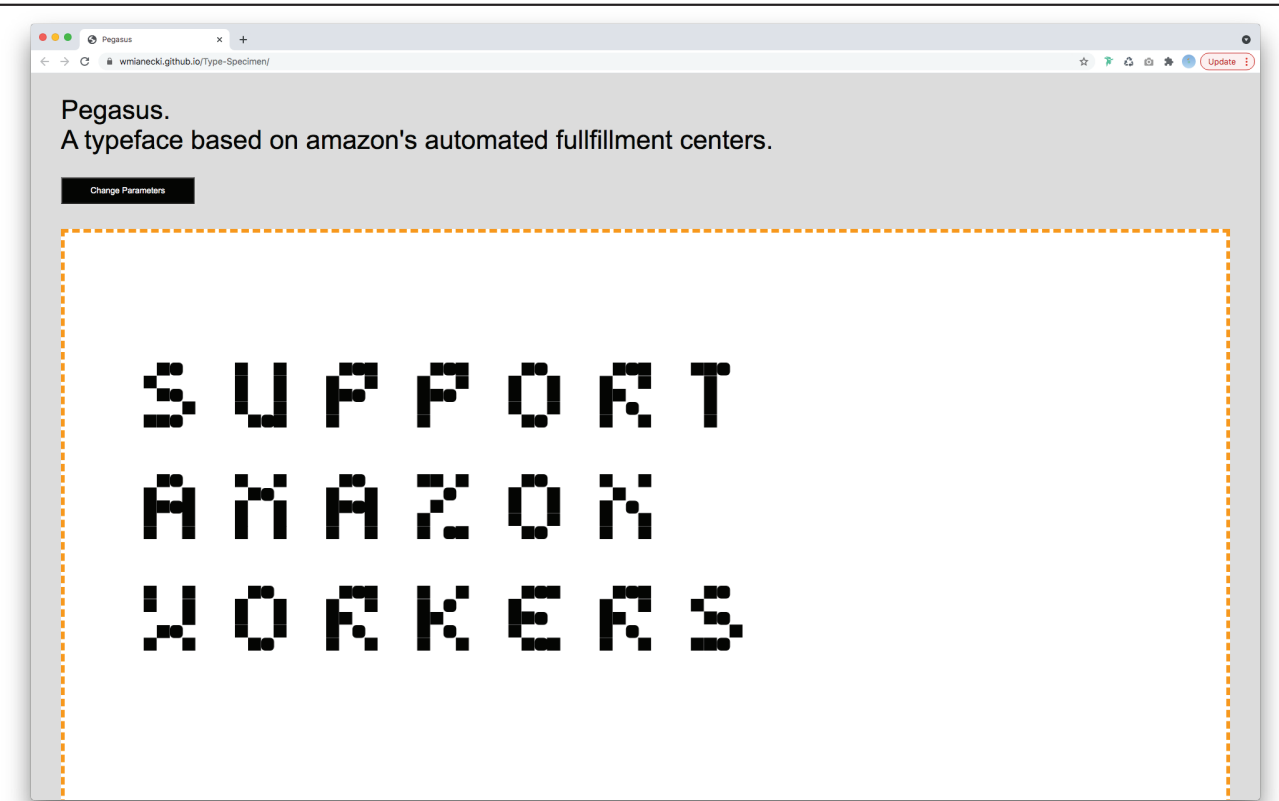
The type specimens demonstrate the typeface's variability and allows users to cycle through different poster text.

Examples of Amazon employees' protest posters.

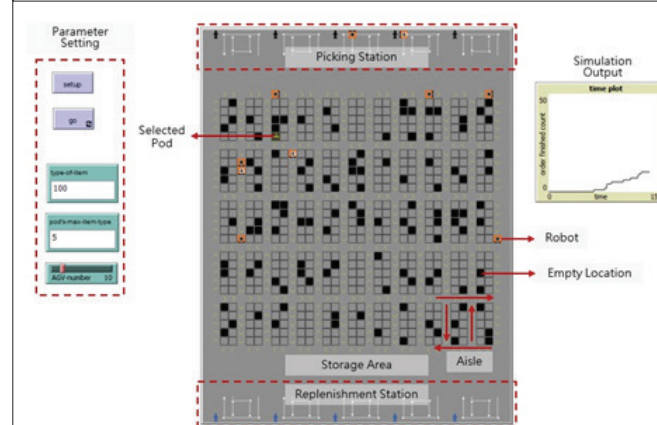
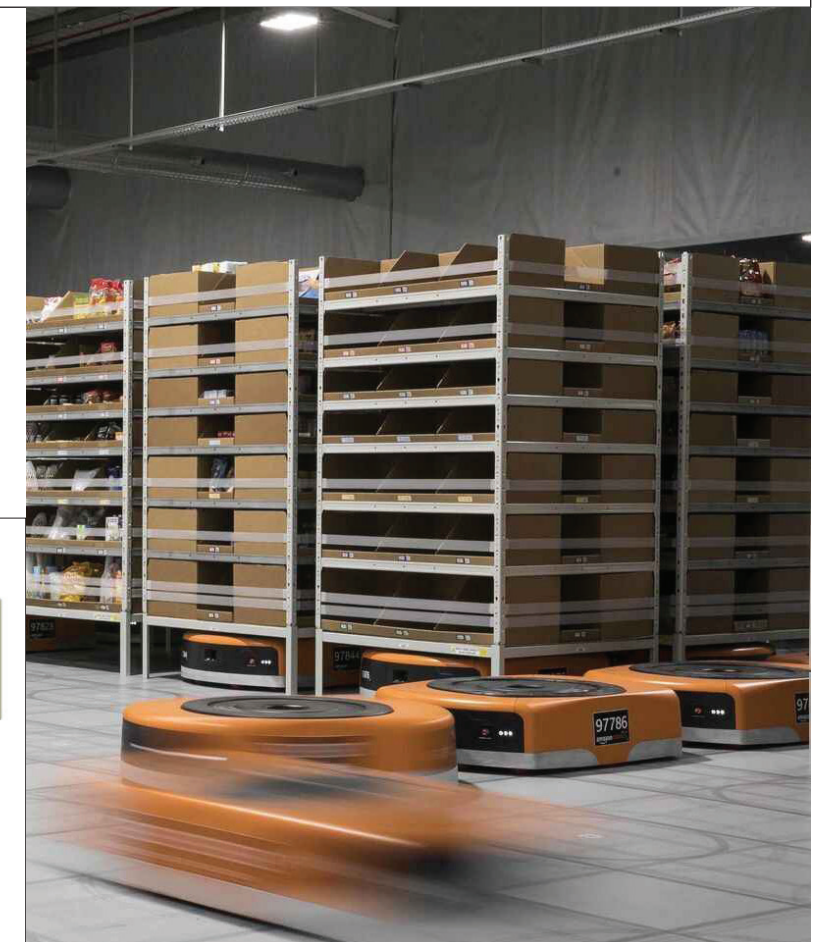
The variability reflects the robots' constant movement.

Amazon's Pegasus robots in action.

An aerial diagram detailing the Pegasus robot grid system that I used to create the modular typeface.



S: U, F: F: O: F: 7:
 FF FF FF 7: O: F:
 U, O: F: F: O: F: S:



DO YOU HEAR THE LOVELY NOISE TONIGHT

In some ways, this is our noise. We are all in some ways responsible for the nightmare scenario that the neighbors have found themselves in.

Bianca Bosker, "Your 'cloud' data is making noise on the ground"

Do you Hear the Lovely Noise Tonight? is an archive of one community's efforts to comprehend, combat, and commiserate over the noise pollution produced by local network infrastructure. The website documents how residents of Chandler, Arizona have responded to the incessant noise produced by a local data center owned by Cyrus One. Data centers, which are large buildings filled with computers that act as servers for clients around the world, require a huge amount of energy to run. They also produce a lot of heat. In order to keep the facility cool, Cyrus One runs cooling units that emit a pervasive white noise.

For local residents, the noise is a serious issue that affects home value, mental health, the ability to sleep, and more. Persistent noise can be very difficult to tolerate, and has led some residents to move in order to escape it.

Do you Hear the Lovely Noise Tonight? includes two ways of relating to this community's experience. A "Listen" page leads to a gallery of videos in which residents try to capture or document the white noise in the background. The videos play simultaneously, looping

endlessly. The result is a wall of sound that both simulates the sensory overload of noise pollution and collects its evidence in one site.

The section of the site labeled "Read" features two, side-by-side, independently scrolling columns. One side includes comments from community members posted to a Facebook group dedicated to combating Cyrus One and the noise pollution. The second column features the voice of Cyrus One as well as local and state government. This second column consists of excerpts from emails, press releases, meeting minutes, and more. The primary sources for the second column are linked to the text, and the full documents can be opened and explored in more detail. The result of the two columns is a reading experience in which the voices of community members are put in direct dialogue with responses or actions of the corporation or state.

➤ A flyer created by residents in response to the noise pollution produced by the Cyrus One data center in Chandler, Arizona. The background image features the Cyrus One cooling units responsible for producing the noise.

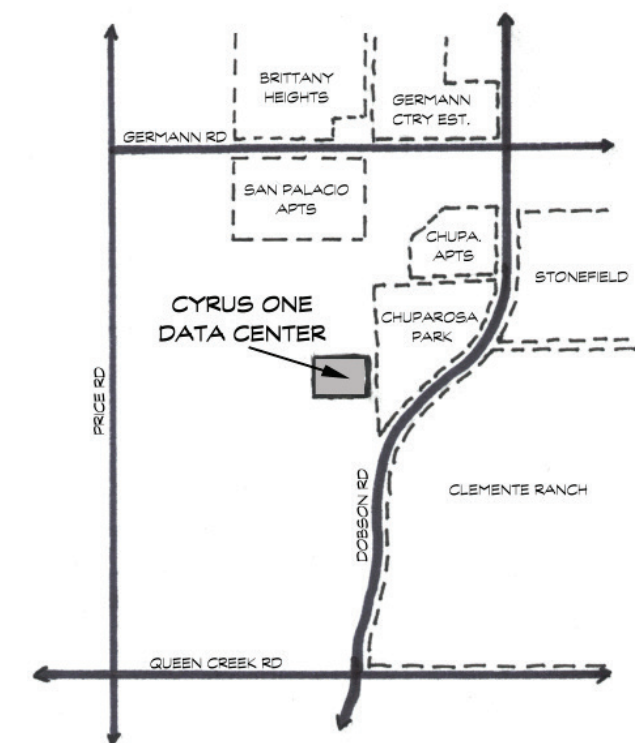
Do you hear noise pollution from your home?

Hi Neighbors! We are your fellow Chandler residents, who live in Clemente Ranch, about ¼ mile from Dobson Road. Ever since the CyrusOne Data Center was constructed behind Chuparosa Park, we can hear a constant humming/whirring sound from both inside and outside of our house. We would like to find out if any of you are also bothered by the same noise. Please visit the following website:

DobsonNoise.com

Please take a few minutes of your time to describe your experience with this noise pollution. We will use this info to approach the City of Chandler to see what can be done. The more responses we get, the stronger our voice will be!

Thank you,
Steve and Amy



Do You Hear the Lovely Noise Tonight? takes its title from a sarcastic post by a Chandler resident to the DubsonNoise Community Facebook Group.

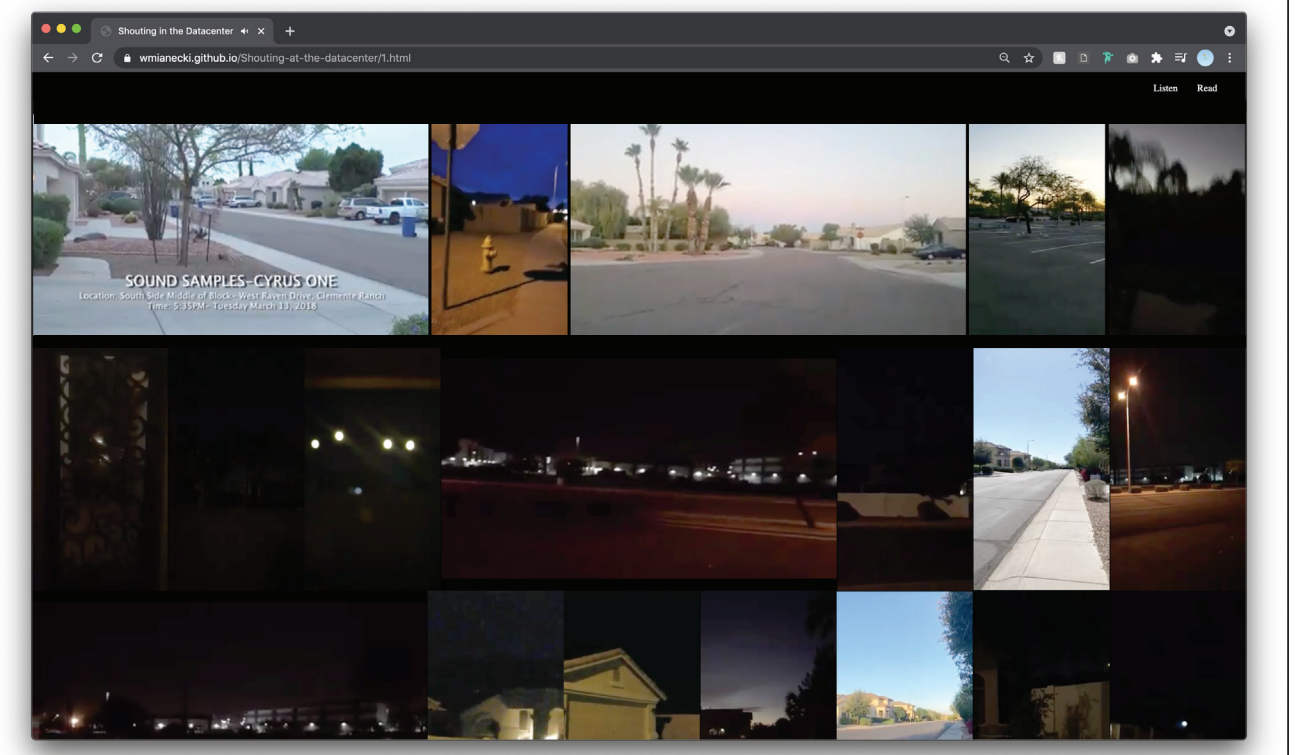
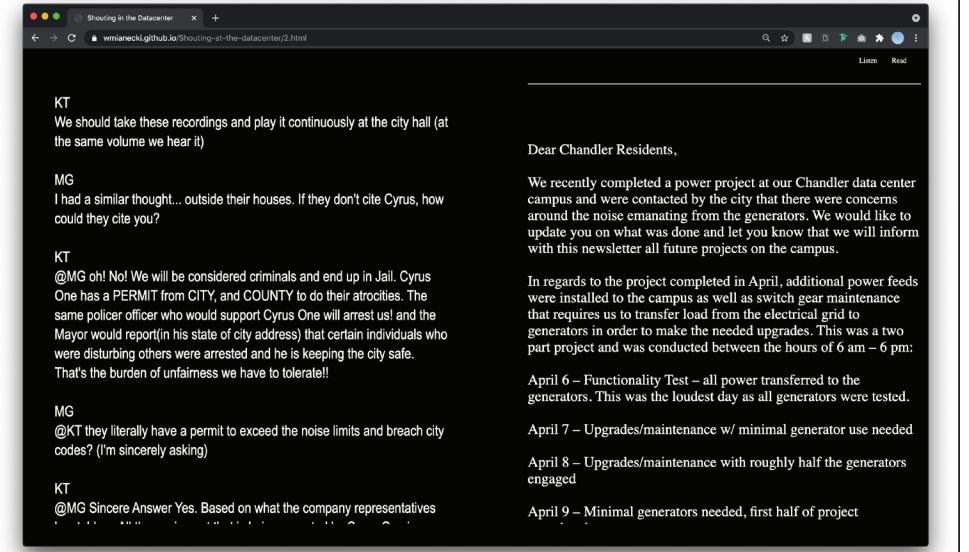
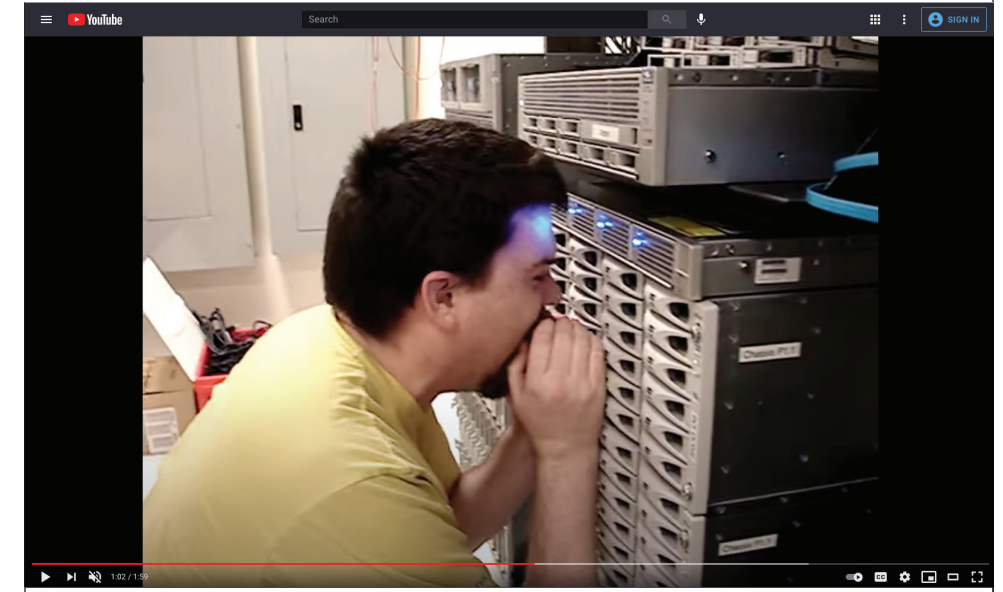
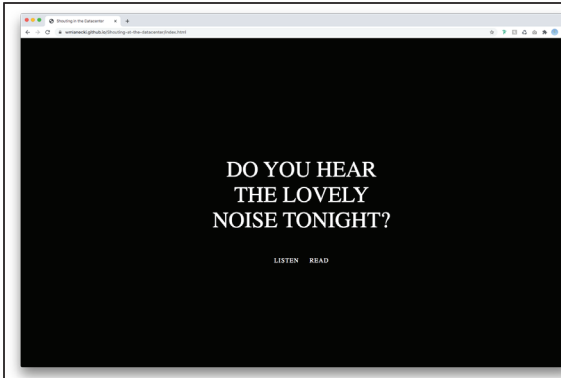
The all black landing page references the experience of not being able to sleep at night due to the persistent white noise.

An earlier iteration of this project took inspiration from a viral youtube video in which an engineer discovered that if you shout at servers in a data center it causes performance issues. The iteration leveraged this by requiring users to shout at their computers in order to navigate the site.

I shifted directions toward the current iteration in order to focus on featuring the evidence and voice of local residents in dialog with Cyrus One and the state.

Two scrolling columns featuring the voice of residents on one side and the voice of the local government and corporation on the other.

A collection of videos in which residents try to capture the sound of the white noise. The videos autoplay on navigating to the page, creating a wall of sound.



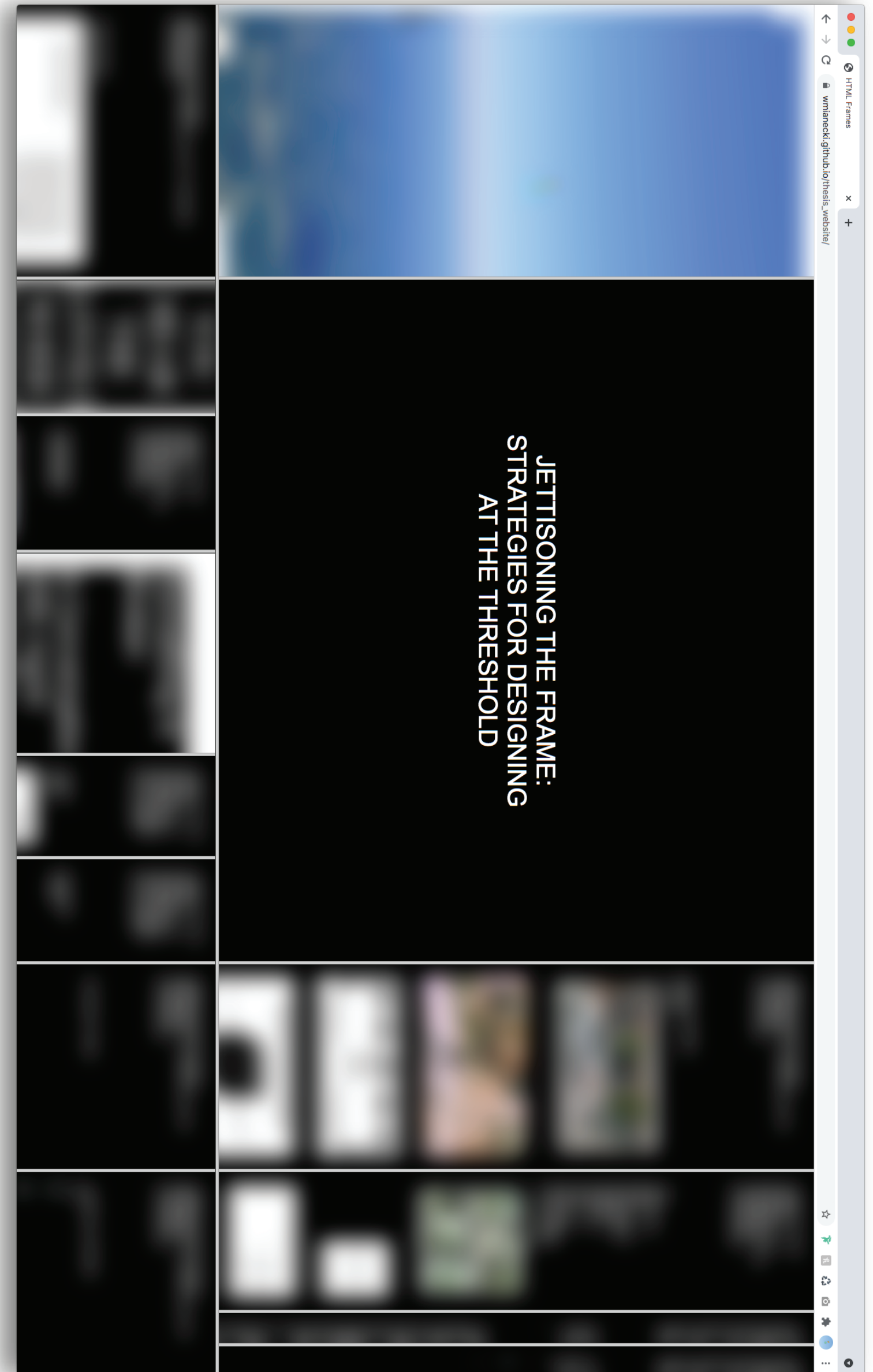
THESIS WEBSITE

The online component for my thesis was designed as part repository and part presentation tool. It consists of many draggable frames, which snap into focus when expanded beyond a certain threshold and blur when compressed.

Navigating the site's content requires constantly shifting the frames, revealing one component while compacting and obscuring others. Each frame contains a different aspect of my thesis work, ranging from project documentation, websites, and interviews, to research, writing, and diagrams. The frames are each an independent webpage, which allows them to feature fully functional websites or videos that can be played or interacted with directly within the layout of frames.

Due to the fluid layout, it's possible to use the site as a presentation tool, although this requires some careful choreography that can produce sweaty palms at your thesis presentation (fair warning).

➤ The landing page of site features my thesis title with all of the other frames and their content blurred out.

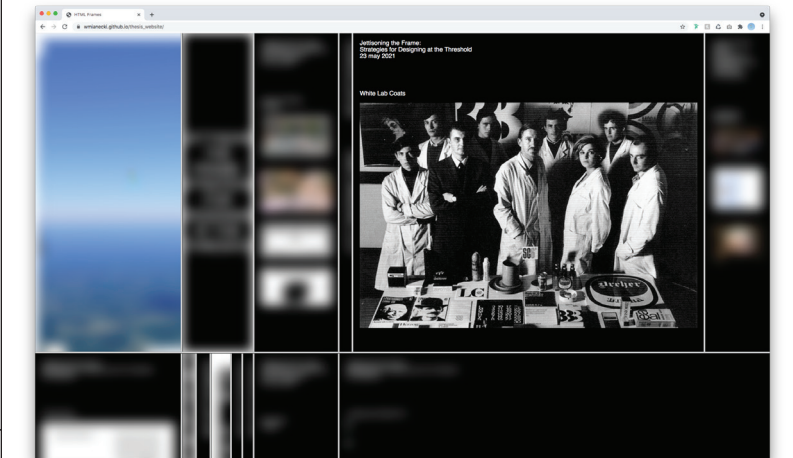
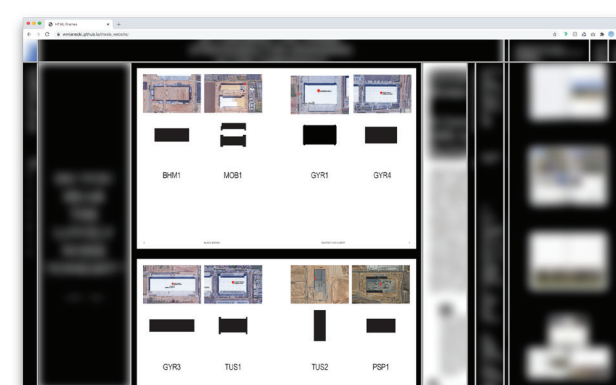
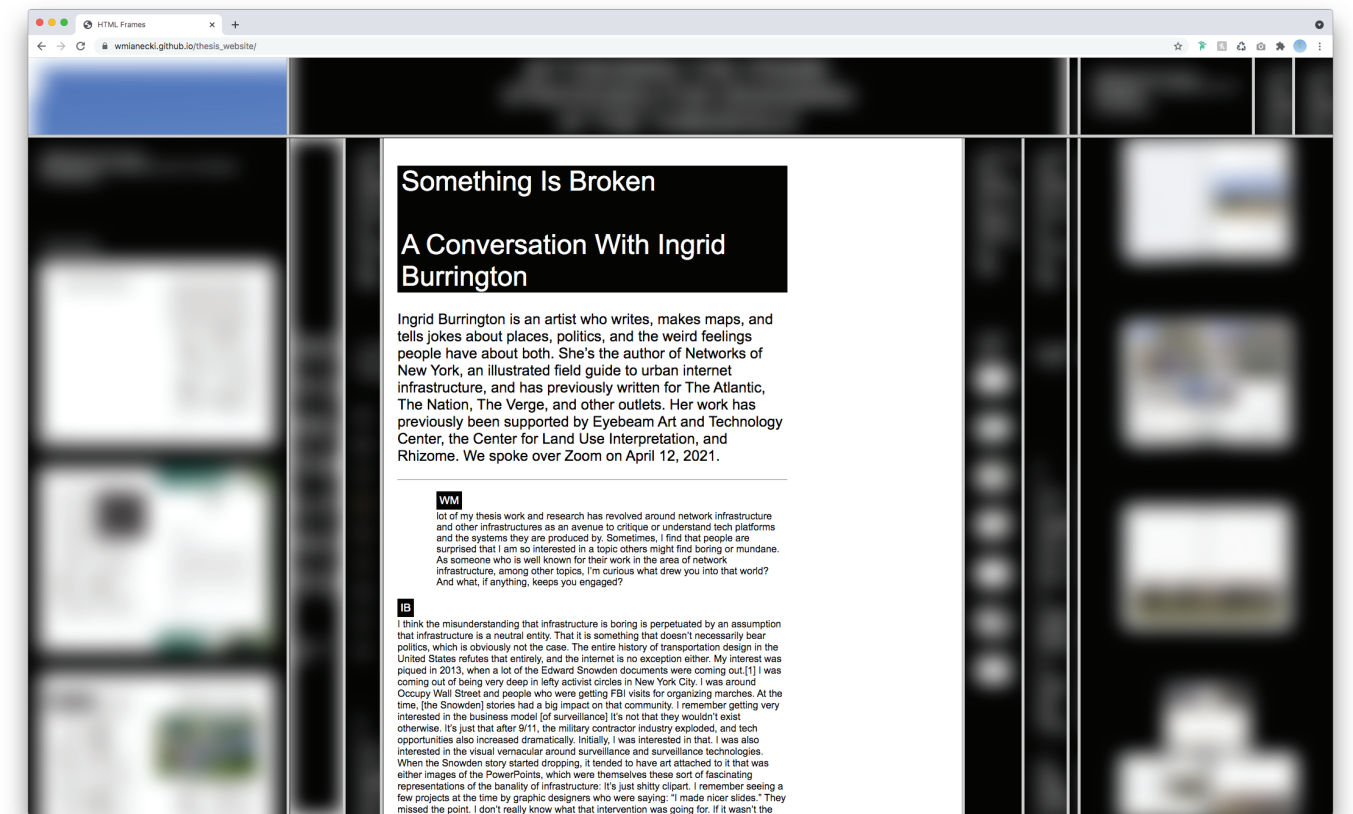
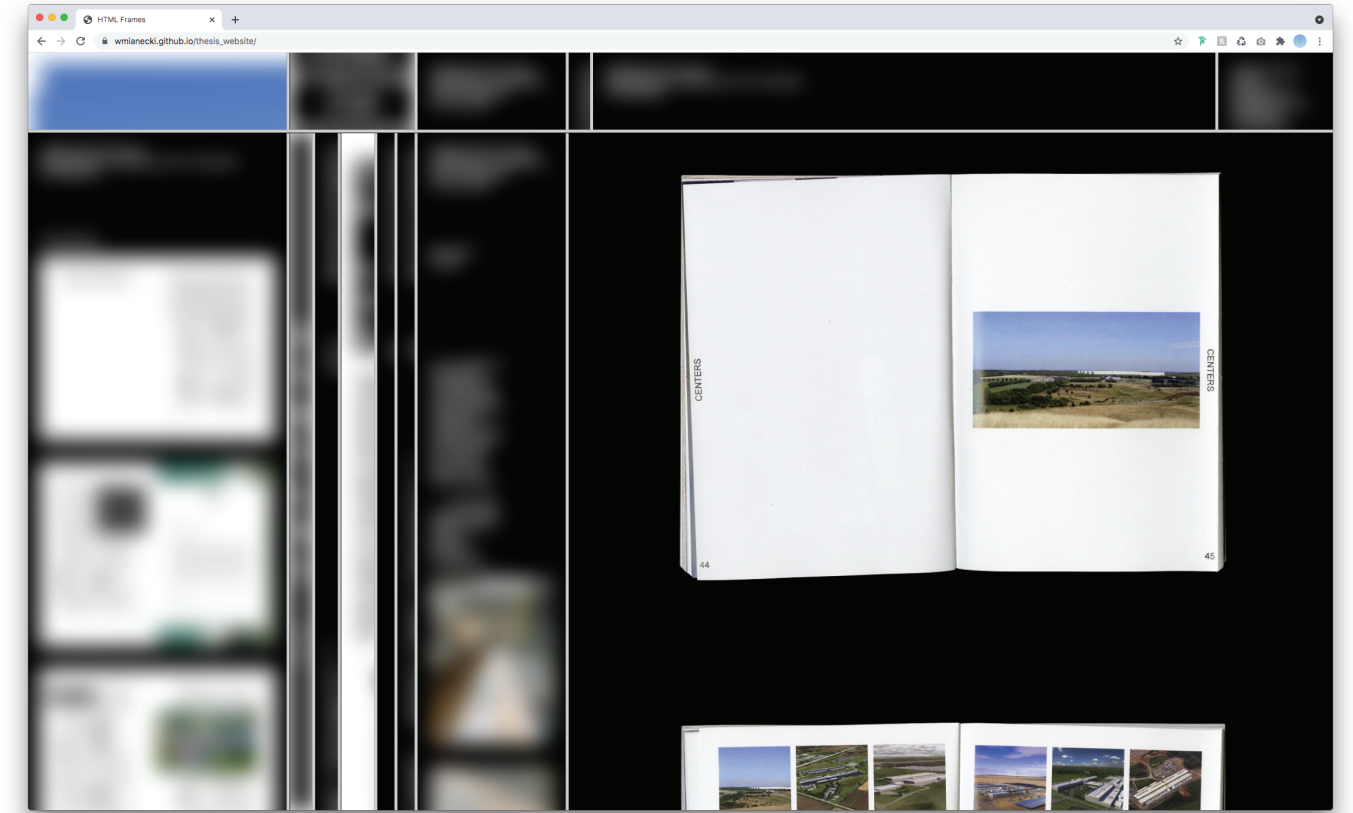


Each frame is scrollable and can contain the full documentation of a project.

My conversations with Ingrid Burrington and Cameron La Follette are included on the site.

I'm very grateful to Nora, Minkyong, and Théo for encouraging me to consider how the medium of my presentation and website could align with its content.

The way the frames shifts is similar to opening or closing window blinds.



BOUND TOGETHER

Dear Visitor,

When we couldn't be together, we shared what we could. What you're seeing are readings, films, websites, games, performances—bits of inspiration we shared to say, "Hey, I thought of you." The references inspired the work, which you'll see on the flipside. Take a folder. Collect some references. We hope they inspire you the way they inspired us, the way we inspired each other.

Bound Together curatorial statement

In collaboration with Matthew Bejtlich, Laura de Baldeon, Ryan Diaz, Everett Epstein, Daphne Hsu, Madeline Wood, Romik Bose Mitra, Georgie Nolan, Kit Son Lee, Lai Xu, and Sophia Brinkgerd

Bound Together is the graphic design department's contribution to the 2021 graduate exhibition. It was conceptualized early in the spring semester, and then executed in just over 24 hours. After the individual efforts of our thesis books and isolation of COVID-19, it was a chance to end the program working together and collaborating in the studio. Each member of the cohort is represented by a single color of paper, on which they curated references and the work it inspired from their time at RISD. Visitors were invited to collect sheets from the installation in white folders that were available on each table.

➤ Installation shot at the WaterFire Arts Center.



Each table had multiple students' work on it. The white sheets of paper were printed with the curatorial statement. The tables were made using the wood salvaged from my *Manual* project — It was a last minute decision!

The setup crew! I will always regret having to leave before this photo was taken.

In keeping with the exhibition theme, we purchased rainbow cords for us all to wear at commencement.

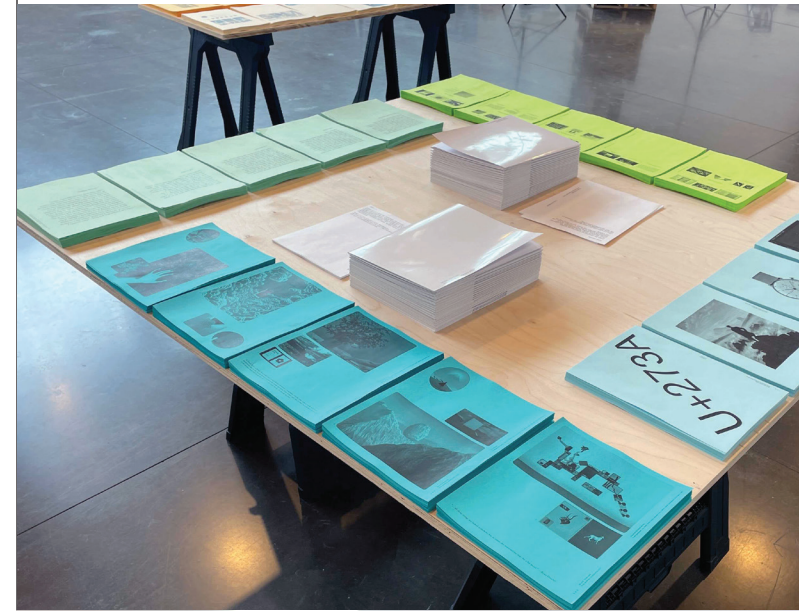
A lot of the decisions for the exhibition design were made within 24 hours of installation. This is a picture of us celebrating after successfully designing, printing, and laying out the wall text.

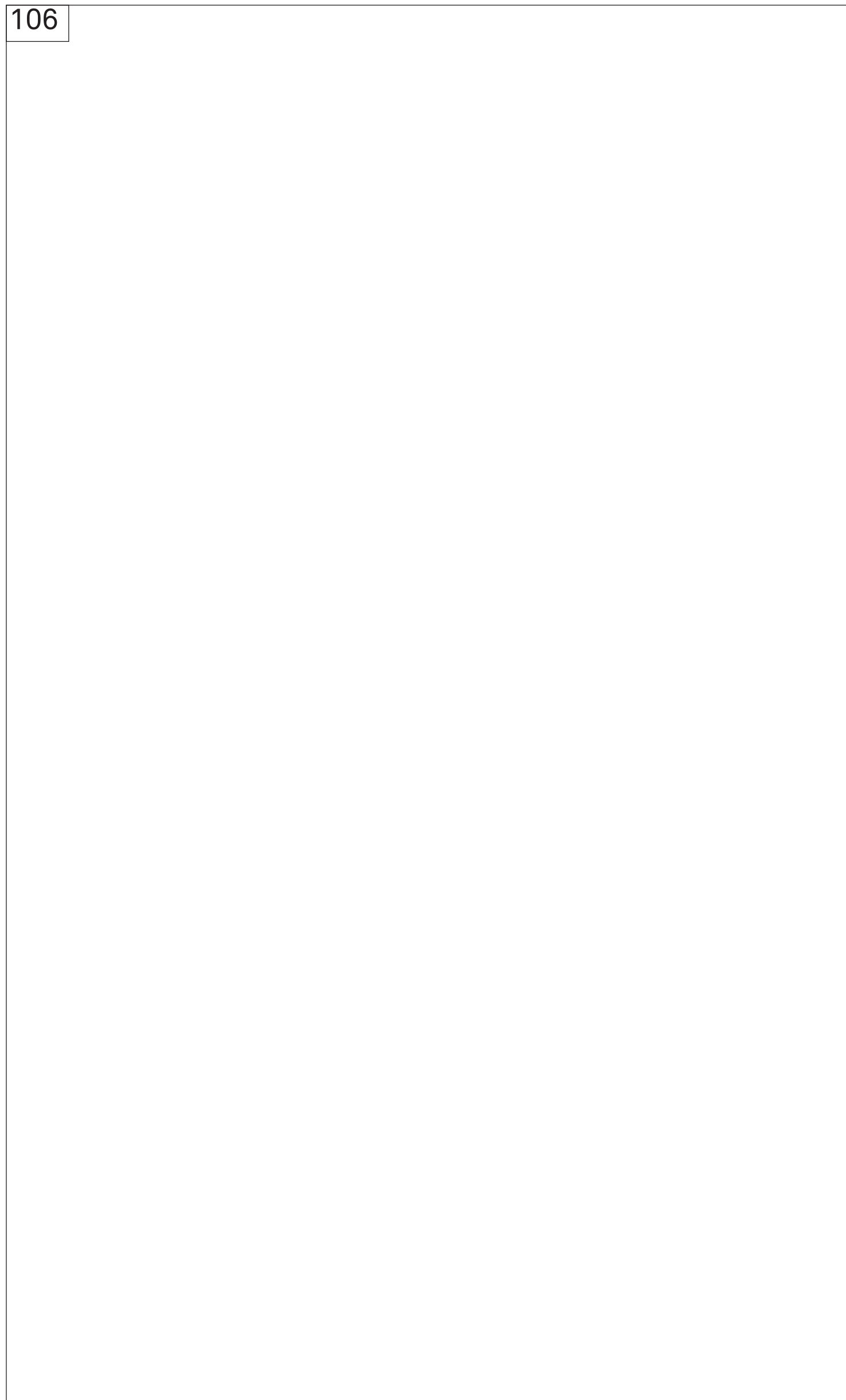
Spending time in studio together was revelatory after almost three semesters spent in some degree of isolation or quarantine.

"Whenever the rainbow appears in the clouds, I will see it and remember the everlasting"

We watched *Notting Hill* while working late to print and assemble the show materials. It was Daphne and Romik's first time seeing it!

"I'm also just a girl, standing in front of a boy, asking him to love her."





Unlimited Demand: A conversation with Cameron La Follette



A sign protesting Facebook left on the beach in Tierra del Mar, Oregon.

Cameron La Follette is executive director of Oregon Coast Alliance. She has a law degree from Columbia University School of Law, and has worked on coastal issues advocacy for eleven years, including managing the Coastal Futures Project for 1000 Friends of Oregon and serving on the board of Elakha Alliance. In earlier environmental work she focused on protecting ancient forests on federal lands in Oregon to ensure clean drinking water, salmon habitat and ecosystem protection. She also served on the Salem Planning Commission for three years. We spoke over Zoom on April 9, 2021.

This transcript has been edited for clarity and length.

CLF If someone were going to talk to me or anyone else about the Facebook mess here, I wouldn't have expected it to be someone at a school of design. I would have expected a degree in environmental studies or land use planning or something similar. How does this fit in?

WM I was wondering if it might have felt a little bit out of the blue when I reached out to you. I'm interested in design's potential to represent companies like Facebook in a way that shifts how we might think of them as abstract digital platforms to a more material context and history. My research and interest in Facebook's cable landing site in Tierra del Mar is part of a larger project that has involved collecting an archive of documents related to all of Facebook's network infrastructure projects around the world.

CLF Well, if you're hoping to hear nice things about the company, I will have to disappoint you up front.

WM No, I'm not. My work is intended as a critique. That's why I keep this Facebook shovel behind me. It's a reproduction of the breaking ground shovel that Facebook uses at many of their infrastructure sites.¹ I keep it behind me as a way to remind myself of the material consequences of being online, that being online is not just a digital experience.

CLF No, it definitely is not just a digital experience, that's for sure.

WM Could we begin by talking about your role as the executive director of Oregon Coast Alliance (ORCA) and the type of work the organization does in Oregon?

CLF I began working for the Oregon Coast Alliance in April of 2010. It's been my work, and the board's work, to bring the organization up to being what we refer to as a first responder environmental organization. That means we're there for people when they get a notice in the mail saying that some corporation wants to do something in the county or the city that they live in. People have nowhere to turn for that, except perhaps to private attorneys who they don't know, or to statewide or national organizations who don't know anything about the local situation and wouldn't be able to help — it's not their focus. So we created ourselves especially to be there for land use problems. That's pretty much our work. One might think that being a first responder means that there isn't anything going on, because you're sitting there waiting for the next phone call. Unfortunately, there's far too much going on. We don't have the time. We don't have the luxury of sitting around. There's always something going on. That's how we got to Facebook, it was a contact from people in Tierra del Mar saying: "Help!"

WM I've noticed that Facebook tends to move into communities aggressively, using code names or operating through a subsidiary, like Edge Cable Holdings in Tierra del Mar. I've noticed that's a pattern replicated in other communities who often don't seem to have that first line of defense that you're

1. The project I reference here is *Golden Spike*. Find the project documentation for *Golden Spike* on page 60

describing and ORCA provides. What it was like when Facebook moved into the community?

CLF I don't think it was clear, at the beginning, to either the people of Tierra del Mar or to us, that Edge Cable Holdings was anything other than a cable company. It wasn't clear that it was a Facebook holding company or subsidiary. There was no indication until some of the residents started doing research that this had to do with Facebook.

You have probably seen some aerial photos in Tierra del Mar. It's a small, rural community. It doesn't even have a storefront. It's just a little bunch of houses that were platted a long time ago, in the '40s and '50s. It's a very quiet and rural place. Facebook, or one of its subsidiaries, bought this vacant lot in the middle of Tierra del Mar, which nobody knew about, or really paid attention to.

Then Edge Cable filed for the necessary permits with Tillamook County, which has obligations under the land use laws to notify surrounding neighbors within a certain time period before decisions are going to be made or hearings are going to begin. That's the first time when Tierra del Mar residents realized that something other than a house was going to be built on that lot. That's also when I got the first phone call.

One of the interesting things about being the executive director of a first responder organization is my life changes when I get an email about something that's a big deal. Months can go by during which I'm just working on regular projects and then I'll get an email out of the blue and it's a huge new project that we're going to be engaged in. I suppose some organizations would find that rather nerve-racking, but that's the reason that there are first responders in many fields, because things happen, and there have to be places for people to go.

WM Did it seem like residents ended up having to do a lot of research in order to understand what was happening with the cable project? How important is that knowledge in the face of this type of a project?

CLF The residents did an enormous amount of research. The entire community, as far as I know, every single resident, including people who have summer houses there, ended up being opposed to the project. It was a small group of people who really put in the time on the research, whereas the larger community relied on them and followed along with their work.

I got a phone call from that core group at Tierra del Mar asking for our help on the Facebook project, which was then called the Edge Cable project.² I investigated just enough to see if this was a project that we could take on

because our time and money is always limited. What I discovered is that,

a few years ago, the Oregon governor basically wrote an open invitation to the delegates of a convention on submarine cables, making a point of the fact that we don't have much regulatory superstructure. The submarine cable industry heard that, loud and clear.

There were quite a few submarine cables coming shore in Oregon as a result). We don't have a \$100,000 fee, for example, or high penalties for when companies make mistakes. We don't have a prohibition on landing cables in residential areas, obviously. Up until this time, all of the cable landings had been on public land or near existing cable landing sites. Edge Cable, for reasons that we did not know at the time, had decided to strike out on its own and build in the middle of a residential area. They didn't buy a lot down the road from Tierra del Mar, which people wouldn't have complained about nearly as much. They bought a lot right in the middle of Tierra del Mar, surrounded on both sides by houses. When residents found out that there was going to be a submarine cable landing there, which requires industrial drilling for weeks, they were not happy.

WM I can imagine!

CLF The big fight eventually came over the local land use permit, which was a decision of Tillamook County. First, the planning commission approved it. Then it was appealed to the board of commissioners. The final decision and the big fight about whether a submarine cable is analogous to, legally speaking, a utility, because utilities have various allowances. That was the question: is Facebook a utility? We said no. The county and Facebook said yes. The Board of Commissioners approved it. I was at that meeting, and it wasn't pretty. The residents were almost

² A letter from 2016 in which Oregon Governor Kate Brown pitches her state as a landing ground for marine cables to the Pacific Telecommunications Conference. Facebook bought property for the Jupiter cable landing site in Tierra del Mar almost exactly a year after this letter was sent.

2. Facebook's cable landing site in Tierra del Mar is known by several names, including the Edge Cable project, referencing the subsidiary company Edge Cable LLC, as well as project Jupiter or the Jupiter cable, referencing the project's codename. I explore Facebook's use of codenames and subsidiaries in more detail in *By Every Name*. → Find the project documentation for *By Every Name* on Page 66



KATE BROWN
Governor

January 5, 2018

Delegates
Pacific Telecommunications Conference
Honolulu, Hawaii 96826

RE: Trans Pacific Undersea Cable Projects

Ladies and Gentleman:

We invite and encourage you to consider the State of Oregon as your future site to come ashore on the west coast of North America, and as an excellent location for the placement of related on-shore operations. Oregon has a long record of successful submarine cable industry projects, a highly developed telecommunications infrastructure, a workforce of skilled professionals for marine and terrestrial telecommunications cable installation, and unparalleled cooperation between its undersea cable operators, fishing industry, and state government.

As chair of the State Land Board, which approves easements for cable landings on the Oregon coast, I can assure you that we will welcome and give full and timely consideration to all landing requests. Please know that the Department of State Lands and the Oregon Business Development Department along with other involved state agencies will work in partnership with you, as an undersea cable operator, and Oregon's fishing fleet to ensure the success of your project once approved.

Please contact Chris Castelli, Oregon Department of State Lands, 775 Summer Street NE, Salem, OR 97301-1279 USA; phone: 503 986-5280; e-mail: chris.castelli@state.or.us, for more information.

We stand ready to assist you and to provide you with the information you need to come ashore in Oregon.

Sincerely,

Governor Kate Brown

KB:jkt

254 STATE CAPITOL, SALEM OR 97301-4047 (503) 378-3111 FAX (503) 378-8970
WWW.GOVERNOR.OREGON.GOV



all present and spoke eloquently, saying: "Please don't do this to our community."

The world did just fine before Facebook was ever invented.

Facebook is not a utility. It is now an additional means of communication, but it's not a central one. It's not a telephone. It's not heat, water, or sewers, and it should not be considered utility. The argument got much more complex than that, legally, but that idea was the basis.

The Tillamook County Board of Commissioners voted two-to-one in favor of it. After that loss, we appealed it to the Land Use Board of Appeals, which is Oregon's land use court, and lost there also, because the land use court has a strong legal doctrine in deference to local decision making. As long as the local government adequately weighed the evidence, and followed all the requirements, they will not second-guess a decision that followed all the requirements and is allowed under the law, even if it's something that is extremely unpopular, as this clearly was.

WM Since Facebook started the construction of the subsea cable landing site in Tierra del Mar there have been a series of accidents. There was the drilling accident in April that resulted in equipment being left sixty feet under the seafloor, including at least 6,500 gallons of drilling fluid, and then a frac-out³ in January during which drilling mud was released back into the ground.

I'm wondering what you see as the stakes going forward? Especially considering the environmental consequences of this project?

CLF Did you see the newest one? A sinkhole? It happened a couple of weeks ago. The problem is, of course, that Oregon doesn't have a legislative framework that really gives any of the agencies any other route than to be accommodating. The whole thing is very frustrating. ORCA finds it really surprising that the agencies have continued to be so accommodating when you had a serious drill accident that left major amounts of industrial trash under the sea floor. Forever. Then there was a frac-out, possibly multiple frac-outs, because there was fluid bubbling up inside the lot as well as outside. Who knows what else is going to happen?

Remember that Tierra del Mar is built on a sand dune. The soil is extremely porous, it's sand. When the frac-out occurred, Facebook said that only 50 gallons of the drilling mud regurgitated back into the hole. They were

pumping industrial machinery on that lot at a far higher speed than would be possible for there only to be a 50 gallon frac-out. It was likely much, much more than that. It went down into the sand, and maybe into the groundwater.

This project has turned out to have pretty much every problem possible. And still, all the agencies are completely accommodating, even under our existing framework. That does seem a little surprising. The department of state lands did require them to pay a fine, I think it was \$250,000. That seems like a lot of money to me. But it's probably not a lot of money to Facebook.

WM No, probably not.

CLF \$250 million. Might be a lot of money to Facebook. Maybe. (laughing)

WM Maybe. (laughing)

CLF But not \$250,000.

WM Oregon Coast Alliance uses Facebook as one way of communicating with the public. I wonder, just anecdotally, if you feel any different about using it after all of this has happened?

CLF I can't remember exactly when we started the Facebook page, but it was at least several years before this incident occurred. We have not had a discussion about deleting the Facebook page. Nor have we had any interference from the corporation when we post about incidents like the frac-out. It has certainly made it more sensitive to use Facebook after this. If there was a better platform that we could use that offered the same ability to communicate, we would probably move to it. Instead, we use the corporation against its own project.

WM I had hoped to ask a question about the research you do related to the history of Spanish colonial trade.

CLF I know you want to ask about it, and I could talk about that for five hours.

WM (laughing) Great! I wanted to talk about your extensive research into the "Beeswax wreck," or the wreck of the ship Santo Cristo de Burgos, a Spanish ship that was carrying beeswax, along with other valuables from Manila, Philippines to Acapulco, Mexico but then wrecked on the coast of Oregon.

3. A frac-out is the unintentional or inadvertent loss of drilling fluids during a drilling operation from the borehole to the ground surface from points other than its entry and exit points. It can result in drilling mud or fluids being released into the surrounding rock, sand, or soil and traveling toward the surface.

CLF My work has been, for the last 11 years, protecting the coast. That has required me to have a sense of recent history. I had not been as focused on earlier history, because it's not about a project that I have to write testimony for next week (laughing). When I learned about the galleon wreck, I remember just being completely shocked. A Spanish galleon is so removed from any modern context that it jolted me into a level of passion for history

located in. That's why I started writing for Oregon Encyclopedia, to get some coastal history out there about some of the more significant shipwrecks, not only the galleon, but later ones as well.

I'm currently researching the maritime fur trade in Oregon and the disappearance of Oregon sea otters. I'm on the board of the Elakha Alliance, which is an organization dedicated to restoring sea otters in Oregon. I find that my



that I hadn't really had before. It triggered my interest in the deeper history of the coast. I have spent so much time since then doing research on coastal history. If you go to the website of Oregon Encyclopedia, you will find that I have written 35 articles, all of them on coastal history. They're all short articles, encyclopedia entries. I wrote about all of our lighthouses, except for one, which somebody else got to before me. (laughing)

WM (laughing)

CLF I wrote about headlands and features of the coast. I've written about several coastal people, about a healing resort that was very popular on the coast and well known for more than 40 years. I realized, as I got more interested in coastal history, that there isn't a lot written. Local historical societies do yeoman's work, but it tends to stay in the area they're

understanding of the richness of the coast has been immeasurably enhanced by all this historical research and writing.

WM I often run into the histories of older networks when researching contemporary ones, and they usually inherit some of the same social or political baggage.⁴ To me, it seems like Facebook and other companies that are operating in a similar way feel linked to these histories, and to be operating in a colonial or imperial way.

CLF Well, they certainly have been in Tierra del Mar. One can see the Manila galleon trade as the earlier highway of exchange for ideas, people, goods, and also conquest, in the Philippines. By the time of the galleon wreck in 1693, the Spanish overseas colonial system was well structured and well set up,

An aerial view of the drilling site for Facebook's subsea cable landing in Tierra del Mar, Oregon. The lot is flanked on both sides by residential homes.

4. Here I am drawing on the writing and thinking of Ingrid Burrington in various lectures as well as the article "How Railroad History Shaped Internet History." Kathryn Yusoff explores similar ideas in their book, *A Billion Black Anthropocenes or None*.

though ships would still sink or get wrecked on unknown coastlines. A shipwreck, like the one that happened on the Oregon coast, is not an act of conquest; but it was surely unwelcome, to both the castaways themselves, and the local Native peoples.

By contrast, Facebook definitely treated Tierra del Mar in a colonial kind of way. They have the attitude of: "We bought the land, we're much bigger and much more powerful, we're going to do what we want, and you're going to put up with it." That has been the case, despite all the fights.

The irony, of course, is that the Spanish castaways had zero desire to be in Oregon, they wanted to be on their way to Acapulco. In the case of Facebook, the company wants to be in Tierra del Mar, but as with the Tillamook before them, the people of Tierra del Mar do not want the incomers to be there.

WM I wonder what you think the lasting consequences of Facebook's infrastructure projects will be? And what precedents it might set for Tierra del Mar, the region, or the coast?

CLF Well, one thing is that it has awakened policymakers about the need to put a legislative structure in place to regulate this industry. That will definitely happen. It might not happen this year, or next year, but it will happen. So that's a positive outcome.

It has also made everyone on the coast aware that there is a possibility that Facebook or some other company could quietly buy a lot in the middle of one of the other coastal towns and do the same thing that happened in Tierra del Mar over again. It would depend on whether or not the local decision makers, unlike the Tillamook County Board of Commissioners, say no to the company.

So everybody now on the coast is aware of their vulnerability to a company quietly purchasing a lot and doing this again, if the local decision makers will allow it.

Another consequence is that it has raised the question: are these cable companies similar to utilities? Are they providing a necessary service that would be considered part of regular infrastructure? Facebook and other companies would obviously say yes, some regulators would say no. At the very least it has startled people out of their complacency about whether or not these companies should be allowed to land in Oregon. Oregon Coast Alliance has made a point of saying that if we are going to continue to allow this, there should be a substantive needs analysis.

It's also brought up the conversation about what happens when these cables are finished? When they're no longer needed? Or when they

need to be upgraded? What are the requirements for taking the cables out? And how do we regulate that? You could have accidents in that process as well. So it's brought up more questions than answers.

Despite what the cable industry would probably like, the issue is not going to go back to sleep again. Not only because the Oregon Coast Alliance will yell, because we will, but also because the residents of Tierra del Mar have made it quite clear how bad the situation is. This installation would even take some national prize if one were offered for the most accidents of every kind.

WM In researching other Facebook infrastructure projects like the one in Tierra del Mar, that seems to be a theme. Facebook will move into a community and there'll be a more aggressive environmental impact, or other consequences, than anyone anticipates.

CLF I'm not surprised. I think everyone was exasperated with Facebook's mealy-mouthed answers to questions and their refusal to communicate much with the community. As the director dealing with this project, it seems like Facebook, and the [regulatory] agencies have been in closer collaboration then, even with our lack of regulatory structure, they really should be.

The agencies should be taking greater care of our coastal and marine resources. After all, that's what some of them are for. We are very protective of our beaches in Oregon. We have strong beach access and protections. I think there's a question to be asked: are we doing our beaches a good favor when we allow cables to be punched underneath them? It's true that you can't see the cable when you're walking on the beach and you don't know it's there, but it is there. Is it the same? Does it matter? Should we care? That seems to me to be a policy question about the nature of the coast. We should have that discussion, but it hasn't happened.

WM I thought we could wrap up with something that's giving you hope right now or that's animating you, either related to these projects, or just in general?

CLF My work with the Elakha Alliance⁵ to restore sea otters to the coast is very hopeful because, as a result of the maritime fur traders and the later fur companies, and the even later local hunting in Oregon, sea otters were extirpated [from] almost all of their range, except for some very small pockets in the north and the south. They have been reintroduced in some areas and now they occupy a small part of their original range, but at least some of it, not in Oregon.

5. More information about the Elakha Alliance can be found at www.elakhaalliance.org

The one translocation that was done in Oregon in 1970 failed, for reasons that aren't clear because there wasn't enough monitoring. Now the Elakha Alliance is working again to try to restore sea otters to Oregon. That's important because sea otters are a keystone species, they have a disproportionate effect on the environment. Restoring sea otters, and in my case, doing a lot of the historical research about how we got to this point, is really hopeful.

At Oregon Coast Alliance, we've had several wins recently that have really protected community livability. All of Oregon Coast Alliance's work and the Elakha Alliance's work also, is to try to prevent people, species, environments or other causes from being thrown under the bus. Nobody spoke for the sea otter. Everybody just wanted the fur. It isn't a situation in which you say this one, pinpointed group of people is guilty, and everybody else isn't.

Everybody together focused on what they wanted from sea otters, but not what would be good for the larger community of people and of the near shore marine habitat. So all our work is to try to prevent that from happening. Whether it's elk, Sitka spruce forests, or people in coastal towns, we are trying to help restore or facilitate a voice that's been lost. When the Oregon Coast Alliance, or in the case of sea otters, the Elakha Alliance, can do it, that's a good thing. That's a hopeful thing.

I don't have the impression that Facebook is ever going to change, so to speak. They are a large corporation with an international network, but I do hold out hope that local officials will care more about their communities and the people and the animals and the estuaries on which they depend. I hope that's true. And sometimes it is true.

WM It all feels interrelated, the unlimited demand for natural resources can be seen as an allegory for the behavior of companies like Facebook, and their desire for a different kind of extraction.

CLF

[Facebook] seems to have taken over from past examples of unlimited demand.

Environmentally speaking, we have reached a point where we can't do that. We have to look at the future consequences.

Corporations, as legal entities, are not set up for restraint. The legal framework of corporations is a framework of maximizing profit. At some level, it's not the corporation's

fault that it is exhibiting unlimited demand. It is the role of the social and political system to look at whether the framework that governs corporations can continue to be set in a way that enables corporations to exist to maximize profit. Is creating such a legal entity something we can afford to do anymore? Considering the resources of the earth?

WM I agree.

CLF That's not something the Tillamook County Board of Commissioners can do anything about, or me either, but it is a larger policy discussion that needs to happen.

WM An important framework to situate Facebook within as well.

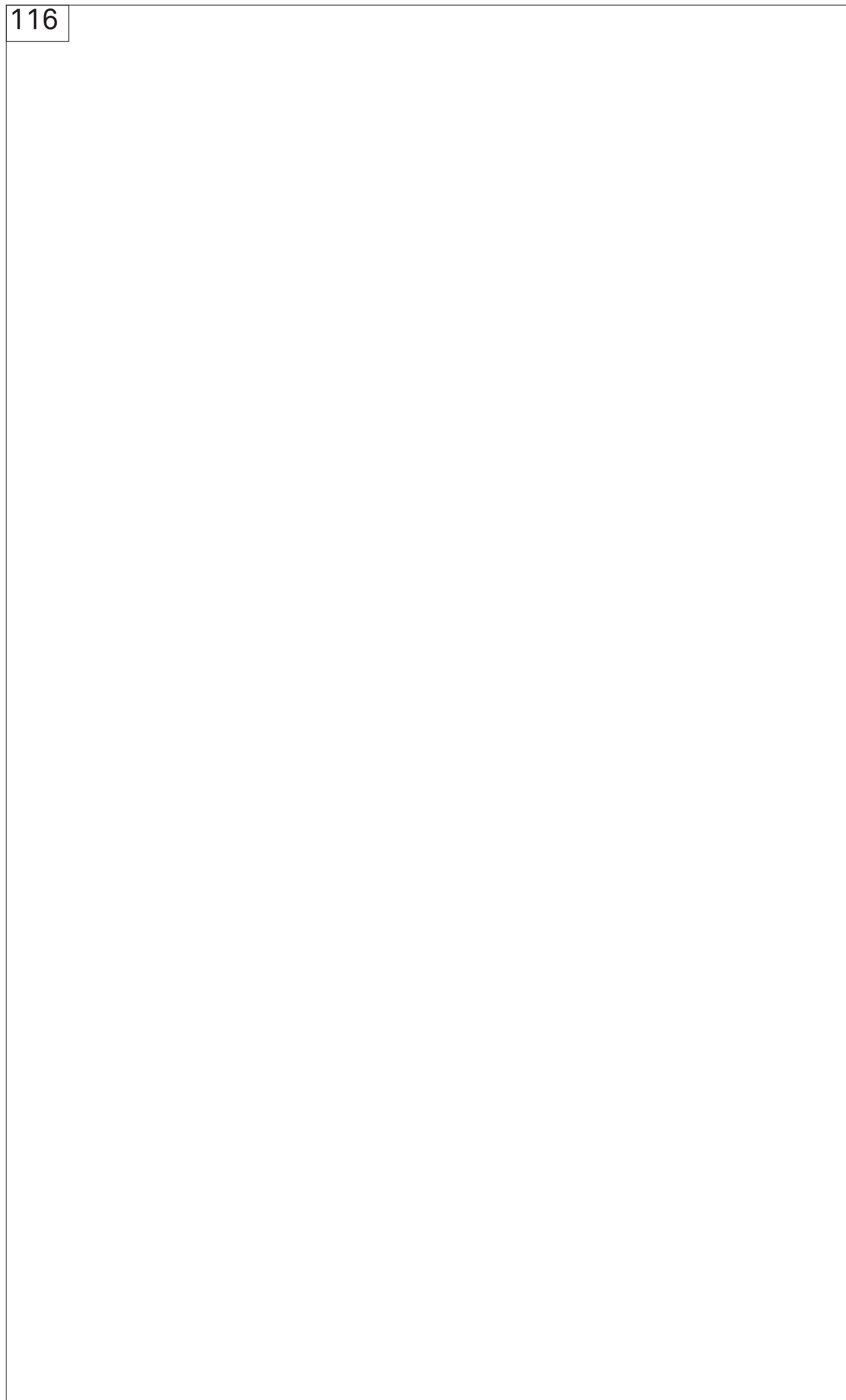
CLF It's easy to say that a corporation is at fault or its executive or CEO is at fault. But that's only true to some extent. Any CEO who does not maximize profits would be fired, probably.

WM And replaced by another.

CLF Replaced by someone who would do a better job at maximizing profit. So ultimately, if we want more restraint in the use of resources, or a shift in the conversation around resources, it's necessary to consider changing the political and legal framework that allows certain kinds of legal structures to exist.



➤ A resident's home in Tierra del Mar directly adjacent to the lot purchased by Facebook.



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Jettisoning the Frame:
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