Playtime: Designing Alternate Perceptions of Timescales

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Committee:

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Abstract

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This thesis first explores issues in ecological health and asks how design can help to engage and protect resources in the hopes of cultural change instead of Eco-capitalism. This topic is vastly complex and requires the work of communities to alter systematic issues rather than an individual design piece. In light of this the thesis goes on to explore how our inability to envision with time-scales outside our own average lifespan prevents us from making conscious designs for a future planet we may not be apart of, one that most likely will be suffering from the ecological harm being done today. This thesis concluding in designing an artifact to be used in qualifying time and placing ourselves in multiple presents.

PLAYTIME

DESIGNING ALTERNATE PERCEPTIONS OF TIMESCALES

Magdalena Nilges

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Thank you to my advisor, Kristine Matthews, my committee member, Christopher Ozubko, and to the co-hort and faculty of the University of Washington Master of Design program for all your support and for taking me down many different rabbit holes.

Thank you to Ann Langford-Fuchs for all her support and guidance, and to Doctors Jim Nardi, Brian Fouke, and Lisa Ainsworth for all their wisdom.

I dedicate this thesis to my father, Mark Nilges, for teaching me more than I needed to know about time, among many other things.

And to my mother, Barbara Pilas, for letting me talk to her about design much more than she needed to hear, among many other things.

PART 1

UNDER-STANDING ECOLOGY VS. ECONOMY

And what is ethical design for ecology?

The topic I originally chose for my thesis was exploring the way design could aid the health of our ecology outside of political ideology, either through designing communication efforts or exposing individuals to experiences that changed the way they might empathize with non-humans in a conscious manner. The more I investigated the complexities of this issue the more I felt that I was investigating a problem in which I, in my hubris believed that I as an individual could make some kind of "difference" in a field saturated with individuals. My conclusions, which base heavily on opinion, have led me to believe that these problems need to be solved with communities not spokespeople.

Regardless I developed a deep understanding of the issues surrounding the ecological health of our planet despite it not leading to a specific solution. I believe that my investigations into ways this problem could be benefit from design might be useful even if I was not able to create a solution from them.

HOW CAN DESIGN IMPROVE COMMUNICATIONS OF ECOLOGY?

From the beginning, nature has always been the goal, whether it was protecting it or understanding it. Nature has been both muse and purpose for my work. Yet as I began to investigate where design exists in context to ecology I discovered vast complexities and a crowded list of solutions.

This began first with taking Dr. Christine Infringement class in Scandinavian studies: Eco-Capitalism in Spring 2018. The class was a seminar based on reading books dealing with issues between

"Now a younger generation doesn't dream, it hopes; it hopes that we will survive, that there will be water for all, that we will be able to feed everyone, that we will not destroy ourselves."
–Dunne & Raby, Speculative Design

Ecology and Capitalism and debating how they might co-exist when many systematic issues put them at odds.

As designers are often tied into capitalism whether through advertisement of product creation, this debate is often reflected in design critique. And I saw similarities in the chosen books to designer's toolkits in communication.

Silent Spring by Rachel Carson, 1960

This book is a classic in environmentalism studies because it can be directly tied to the creation of the first Earth Day in April 22,1970, which represented a monumental shift in the way the United States considered its relationship with the environment.

Carson wrote about the pesticides being used in suburban America to kill mosquito. The insect at the time were seen as a threat to the American Public due to the spread of malaria. As the death total increased, many were terrified and persistent on using pesticides, specifically DDT. And yet while many applauded the effectiveness of the chemical, Carson, a marine biologist, began to see the negative effects of pesticides, but not alone. People wrote to her that they had noticed a lack of songbirds in their backyards. This sentiment, which Carson elaborated in her book, describing how the health of one species can effect an entire ecosystem, was easy for the public to commiserate with and backlash towards pesticides began. The controversy, between the health of the public (against malaria) and that of their environment became a heated debate in America and Carson has been blamed for creating hysteria. However, today we are aware of the long term evidence that shows that mosquitoes become resistant to DDT, but song birds can continue to suffer from the neurotoxins meant to kill mosquitoes.

Silent Spring, through persuasive exposition, described the "problem of ecology, of interrelationships, of interdependence" and brought to light the way humans are a part of "this web of life" (Carson, 1987, p. 189). In that way, she humanized the needs of the environment. She was also able to resonate with the majority of the public through letters she put into her book written by the people who experienced the consequences of DDT. One observer wrote that "wrens, robins, catbirds and screech owls have nested each year in our garden. There are none now. Summer mornings are without bird song" (Carson, 1987, p. 112). These moving personal tales help again to show the human experience in the effects of the pesticide.

Carson's work can also be examined as a piece of design from Ezio Manzini's theories of *Social Innovation* (Manzini, 2013). This is because what made *Silent Spring* so successful at stirring the public was that it related to their needs over that of the governments, and it called to action real communities who had started to notice changes in their world. Ecological health can often exist in ways unnoticeable to our daily lives, but Manzini argues that if we hope to alter cultural relationships with ecology design requires *Social Innovation*.

Yet as I reexamined my opportunities to design something that may make visible ghost-like threats, such as climate change and a diminishing bio-diversity, I struggled with emergence.

Because how do you create a solution to a problem when that solution may become problematic if it grows exponentially?

Victor Papanek's ***Designs for the Real World*** tackles these issues

between designers and capitalism. But while he critiques design, he also acknowledge that designers often lack control of an issue that is supported by the wasteful nature of growth economy.

Consumers can become infatuated with novelty because our society has worked to hide the consequences of our purchasing actions. So while a product might display itself as a solution to all our problems, we are often unaware of its story before reaching us and after we dispose of it. Yes, there have been shifts towards visualizations of our energy usage and devices like the *Nest* that aim at a reduction in energy waste. Yet the waste involved in creating such devices is completely hidden from us. We also are shown pictures of the garbage patch in the Pacific ocean that represent the collective build-up of our unconscious wasteful disposal of plastics. But the discussion turns from our systematic dependence on plastic to simplistic solutions like banning straws instead of acknowledgment of the economic systems in places that secure our dependence on short-term purchasing.

These examples also display two extremes, one, the representation of an individuals energy usage that is corrected for them (in some manner hiding their actions). The other, a representation of millions of tiny actions that become overwhelming and difficult for anyone to fully conceive of due to the vastness of its scale. Together these present the dilemma we have with understanding our actions when we consume, how does action become magnified by a population? This concept, also known as the ***Tragedy of the Commons***, is a social science term that states an individual has the tendency to act in the desire of self-interest even when it is contrary to the common good of the group, which leads to strained resources.

There is also a misunderstanding in the way these resources function. When societies value one resource over another it undermines ecology. In response to this Arne Næss developed his philosophy of ***Deep Ecology*** which promotes the equal value of all resources regardless of their contribution to human society, as well as the push towards the radical reconstructing of society in light of these ideas.

Næss describes how environmentalists have rejected economics, for the subject's unethical ecological practices, but it is necessary for the public to be a part of economics for it is otherwise "supporters are silenced because they cannot stand up in public discussions with people who are well acquainted with economics" (Næss 2003, pg 106). Especially in response to Gross National Product (GDP) which is often seen as a necessity to produce over conserve (Næss 2003, pg 110). It is clear now that to support ecology, individuals need to be invested in economy, and therefore support politicians that strive for a economy that is in harmony with ecology.

Because what ecology really helps us to understand is that individuals are not quite really individuals at all, and it is important understand our dependence on the functioning of others. Our dependence on it must be recognized when we have the ability to wipe out so many species and alter the geography of the world so greatly that some scientists are referring to the current as epoch as the ***Anthropocene***, due to human activity being the greatest influence of change on the planet.

Granted this is not a solution that can be fixed through design alone, but design is a form of communication. One that is often the manner in which we interact with technology. Therefore, it has the ability to facilitate agency for a user. Ethically then, we have to understand not just what is best for the user immediately, such as a sense of

"We are now beginning to realize that "individuals" aren't particularly individual at all."
-Margaret McFall-Ngai, Noticing Microbial Worlds, Arts of Living on a Damaged Planet

pleasure that can form into addictive habits with technology, but longevity. These theories of time and design come in to play in Carolyn F. Strauss and Alastair Fuad-Luke's Slow Design Principles. One designer that fits this principle is Dutch Designer Simon Heijdens, who "believes that design should, like Nature, unleash a continuum of expressions over time" (Strauss 2015, pg. 5). In his work "Broken White" Heijdens creates ceramics that reveal patterns over time as they are used, developing more intricate patterns for cups that are favored. In this way, also revealing human activity and energy use rather than hiding it (Strauss 2015).

It is also important for designers to leverage social connections. It has been shown that social norms have a great weight on how we interact with our surroundings. We are more likely to recycle because of a sign that tells us everyone else is recycling, than one that aims at the "bad" person who didn't recycle. Designers can leverage this social desire to help us become aware of the power of collective action. Especially when we become passive from the dismay of the damage to the planet. This disheartening can be alleviated through harnessing the emergence of social action. (Stoknes, 2014)

This dismay and responsibility can also result in cognitive dissonance, the tension created when our beliefs are contradicted by new information. This issue is especially true for people who are skeptical about scientific research that challenges their way of life which often is true when products or behaviors become re-framed through an ecological lens (Stoknes, 2014). Design can help to alleviate some of the tension that comes with new information. It is, however, extremely important that design remains transparent, as it has the ability to dis-inform, especially when beauty is used

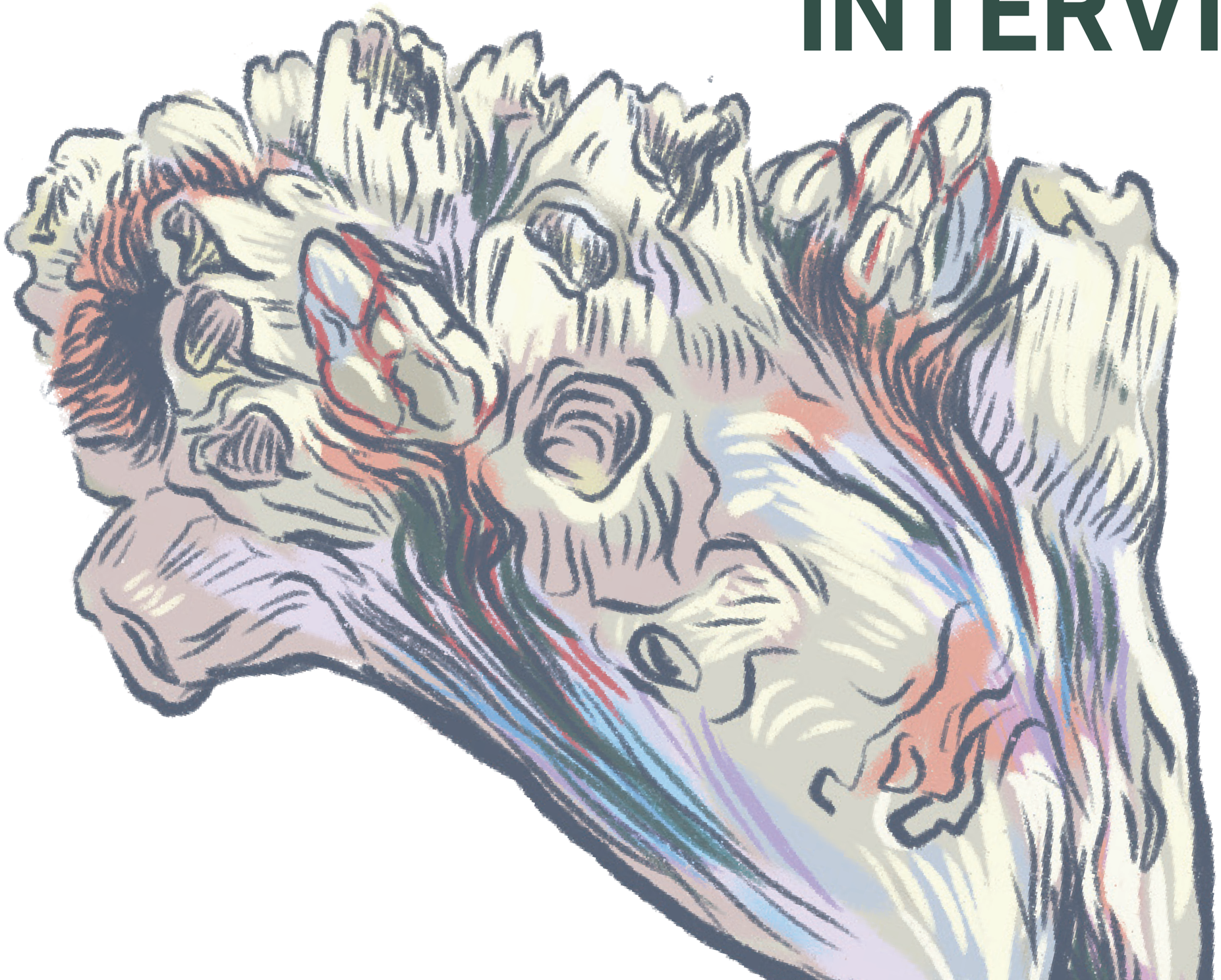
as a signifier of truth. But if design does intend to move us towards positive behavior, it needs to be able to speculate a future that motivates the individual (Dune, 2014).

Through extensive readings, spanning from philosophy to microbiology and social psychology, I attempted to isolated three opportunity areas for design. First to create representations that make complex and invisible ecological systems less abstract and more comprehensible. Secondly, use both personal data as well as collective data in order to prompt reflection on one's actions in the context of broader group impact. And lastly, design tools that leverage ritual, nostalgia, and other social connections to drive positive behavior change.

"Societies are built around driving, heat-regulated buildings, eating animals fed energy-intensive crops and air travel. The inner tension and perhaps even self-contempt grows - and this is what is called dissonance."

–Per Epsen Stoknes, Rethinking Climate Communications

INTERVIEWS



INTERVIEW OUTLINE

Hello, my name is Magdalena Nilges, I will be asking you some questions about your research and your views about scientific research and ecology, and how you perceive the interactions of these subjects with the general public. I will be recording this conversation, but this recording will never be used for public purposes, it may, however, be quoted from for the purpose of a paper. First, if you could please tell me your name, your title, and a short summary of your background.

How would you define ecology?

What do you find people struggle the most with when understanding ecology?

How do you think people could improve their understanding of ecological systems and their role within them?

What types of storytelling do you find to be most effective in communicating science?

How do you contextualize abstract information or information that is grand in scale, specifically time? Do you think it would benefit people to have more tangible ways of understanding this kind of information?

What do you find is the best way to help people slow down and interact with the natural world?

Tell me about a time you saw effective communication of ecology to the general public. What role could a designer have as a medium between science and the public?

To supplement my secondary research I conducted three semi-scripted interviews with professors from the University of Illinois in hopes to better comprehend ecological complexities from expert researchers and to understand where they saw the biggest issues in communication of the issues with the public. The interviewees were:

BRUCE FOUKE, PhD
Director, Roy J. Carver Biotechnology Center
Professor, Department of Geology
Professor, Department of Microbiology

A multidisciplinary scientist who jokes that he is a "geologist born again microbiologist." His current work explores how bacteria in the Yellowstone Mammoth Hot Springs reveal geological data, as well as investigating bacteria and geology in coral reefs.

JAMES B. NARDI, PhD
Research Scientist, Development of Insect Stem cells

An entomologist at the University of Illinois, Nardi investigates life under the soil, and teaches in both a university and a public setting to introduce people to the necessity of the little creatures that live all around us, sustaining our environment and our agriculture.

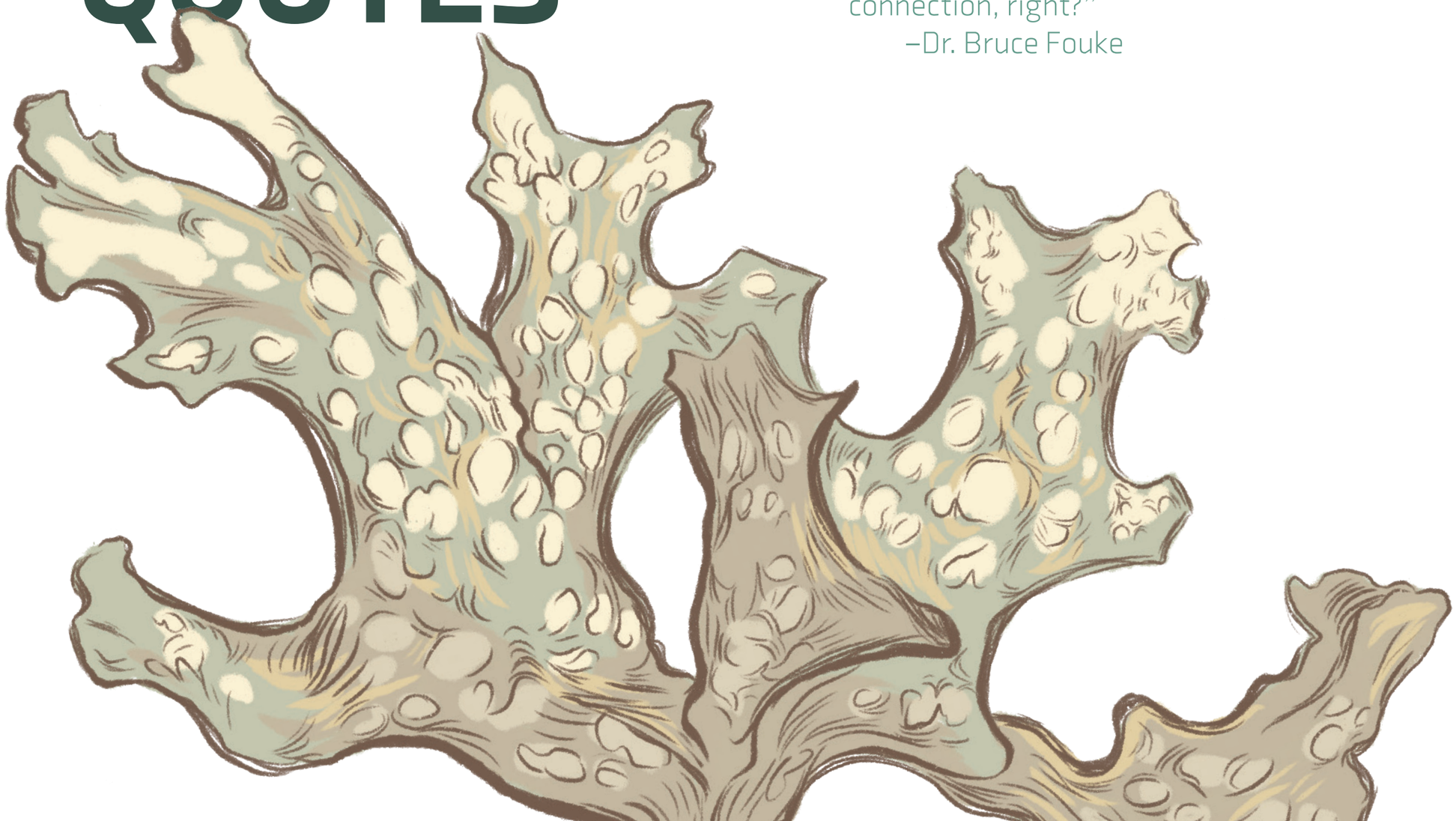
DR. LISA AINSWORTH
Principle Investigator

A researcher in the field of crop sciences, her testing focuses on understanding plant responses to environmental stresses. Her current research is funded by the US government and documents corn's reaction to the current conditions of the ozone layer.

SELECTED QUOTES

"I like planting and harvesting, and taking care of animals and that kind of stuff. And so I'm saying that as a preface to your answer, is that I just think in all walks of life, and all things we do, as human beings, we have to find points of connection, right?"

–Dr. Bruce Fouke



"I get to see every shape, form, and flavor of human beings that are from all over the world. And the number one issue they have understanding is evolution. They just don't seem to grasp what that is. But when you put evolution in the context of the ways that organisms have responded and adapted to evolve to the constraints of the environment and then eventually, some organisms rise up to actually control that same environment, you are putting it in a context that works really well. Another big, big problem is time. And so, as you know, our current Earth is just a snapshot of 4.7 billion years of Earth history. Life came to Earth 4 billion years ago. So we have 4 billion years of records of the co-evolution of life on earth and having it go both ways in terms of feedback loop."

–Dr. Bruce Fouke

"Whenever I go to an environment, even if it's a place I've been 1000 times before. My first few hours I go in and sketch, and there's always something slightly different."

–Dr. Bruce Fouke

"Ecology, well really the name actually means the study of home. So it would be the study of our environment, the place where we live, and where we live we often forget that we live with other creatures, everything from microbes. We certainly live with lots of microbes, they live in our guts, they live on our skin, and they live with all the creatures around us."

–Dr. Jim Nardi

"What research has shown us lately is animals have the same feelings, they have empathy, they love members of their own species, and they have empathy not only towards members of their own species, but empathy towards other species."

–Dr. Jim Nardi

“Because once I tell people about these creatures most people they say, ‘Well, you know, I’m going to step on the earth more lightly because I never realized that those creatures were down there.’ ”

–Dr. Jim Nardi

Dr. Jim Nardi’s office, where he draws insects from the soil to help understand these micro-organisms better.

“We need to tell positive stories, as well as teach about the implications of the decisions that we make, and the effects of human activities on the environment.”

–Dr. Lisa Ainsworth

“But what I think is difficult today is that bridges go up really quickly. And so figuring out how to reach people where you’re meeting them on their level. So also from an academic standpoint, but not in a way that you’re sort of dumbing down information, but rather having conversation and meeting people where they’re comfortable and listening.”

–Dr. Lisa Ainsworth

REFLEC-
TIONS

As I continued through my thesis, I found it difficult to see where I could benefit ecology in an impactful way without falling into the same traps many designers have fallen into before me, such as focusing in on a mascot of pollution rather than the source creating it. I struggled greatly with this as I took issues with disposable products being created to prevent waste.

However, as I sketched out prototypes, I found myself focusing on what designs around me caused me to slow down as I recognized that often my ecological irresponsible choices were often impulsive. I looked at how a record player could create an atmosphere that encouraged active listening to an entire album. These aesthetics of a record player, an analog design that no longer is necessary with digital music streaming, remain popular with current artists and stores selling records. This is partially due to its fashionable quality in today's youth, but this aesthetic expands past this. It provides a sense of ritual in listening to the full album encouraging a focus on the music that could inspire a ritual experience similar to this with nature.

To explore these possibilities further I investigated what items I find are able to "slow" me down or cause me to reflect. These range from things as simple as tea or more complex philosophies like wabi-sabi. Some a short term like a mirror or a clock, others shift time perspectives like dreaming and reading.

Through my own practice, I have investigated how slowing down and drawing my surroundings differs from other forms faster forms of documentation. For instance sketching a scenic view rather than just photographing it. This helped me to sit and analyze the surroundings, helping me to notice changes. A finding that was also supported by expert interviews with scientists who remarked on how they use sketching as a research tool.

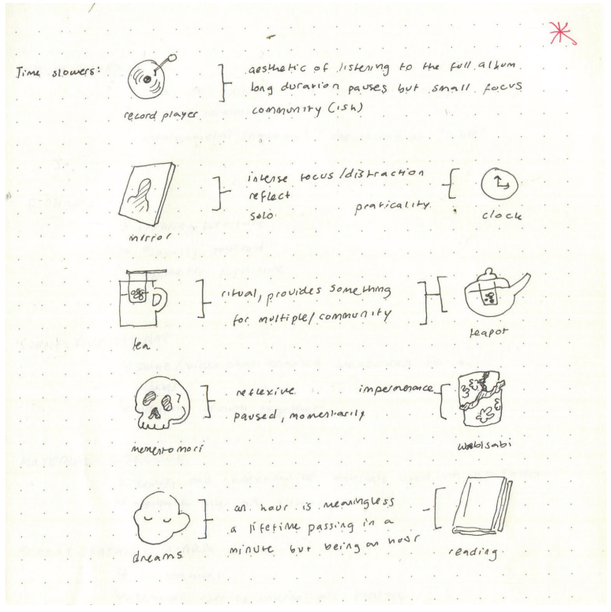
I aimed to leverage Slow-Design's ritual principle, to create positive rewards as well as helping these habits become long-lasting (Grosse-Hering 2013).

But could visual representation help people to manifest moments of reflections? And what prevents these reflections from becoming frustration and invading the tempo of their daily lives? What helps them to be moments that are instead sought out? Unable to move forward I instead shifted to how designers can communicate time, as issues with shot-term thinking have become a crucial issue for dealing with the human impact on the planet (Fisher 2019).

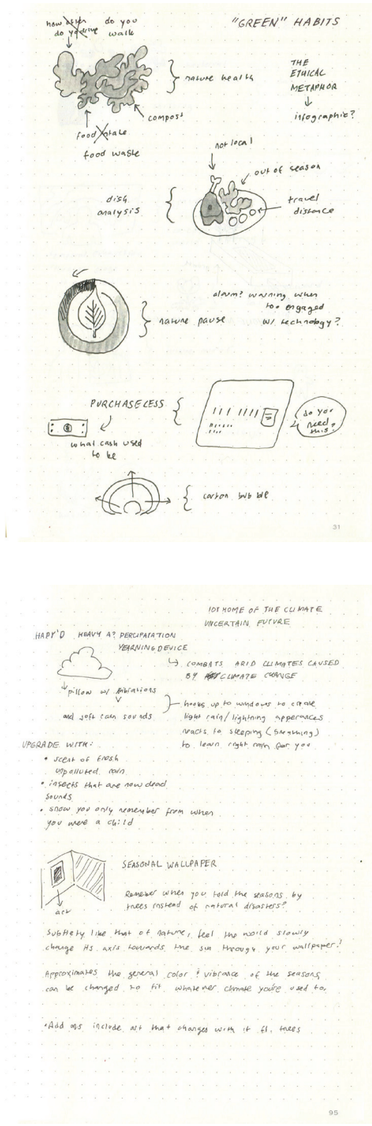
Still frame from visualization

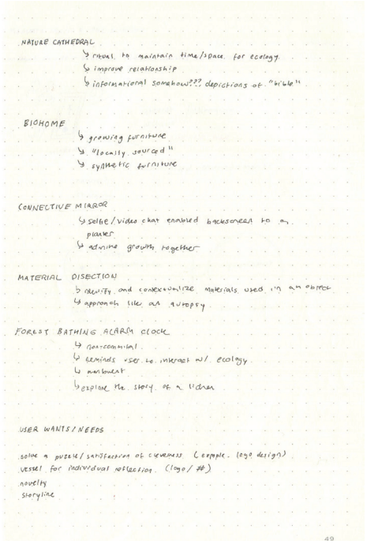
Regardless I still have to believe art and design can help to mitigate these ecological problems. Perhaps through alternative futures that provide qualitative interpretations of abstract data like those threatened by climate change. They can provide hope and action through opportunities for empathetic connections with our environments. Just as our ecology requires diversity, so should our imaginations of the future. However, this depends greatly on social constructs, and I believe these designs require the work of a community not an individual.

So instead I shifted my focus to only time, and how designers, by creating alternative experience of time, can help people to engage and perhaps even empathize with a future world.

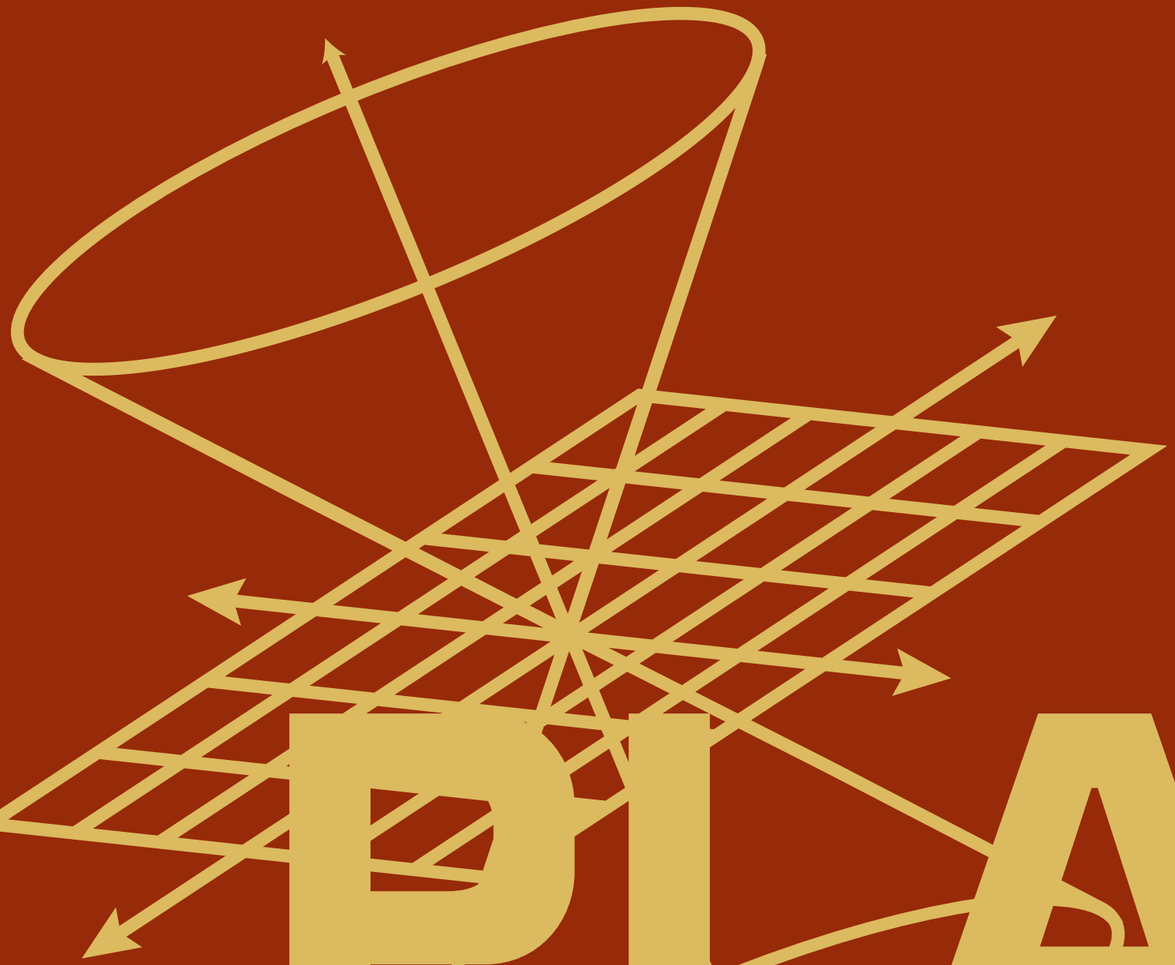


"Things" that alter time



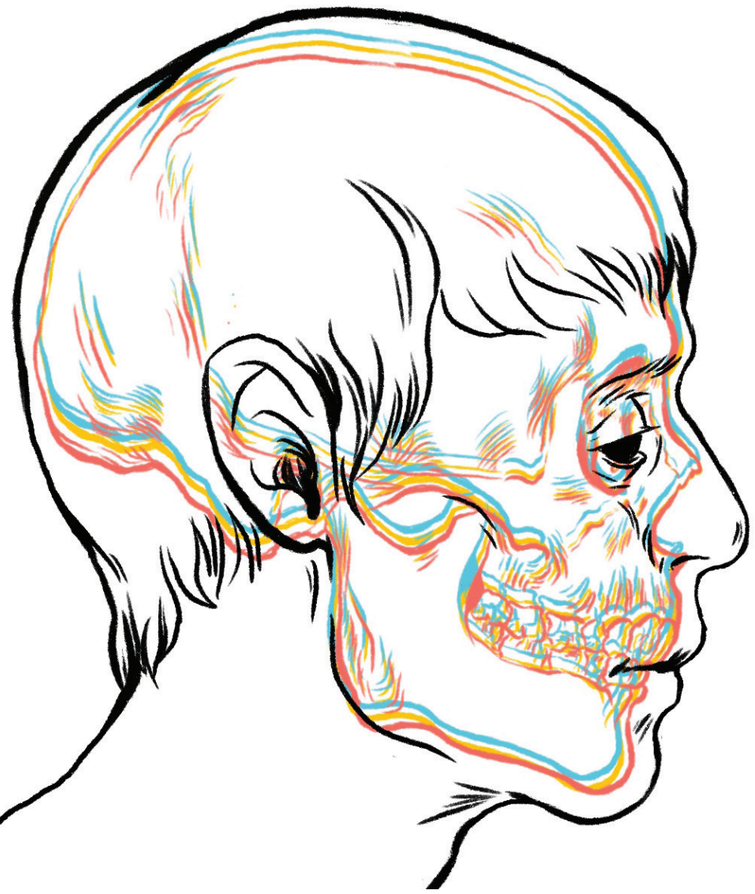


Prototype sketches



PLAY TIME

PART 2:



Like many people today, I began to suffer from *Apocalypse Fatigue*, how can we think long-term if we are overwhelmed with catastrophic predictions?

“Perhaps the emotion
of time is precisely
what time is for us.”
– Carlo Rovelli,
The Order of Time

INTRO: WHY TIME?

Plant as a clock, research from Part 1, still frame

While investigating part one of my thesis I became enthralled in how time plays an important role in our understanding of ecological health, and that as it is, humans are particularly ill-equipped to think long-term. I began to follow this thread and paired it with secondary research from scholarly publications and books as well as drawing on some of the research during the first part of my thesis. This included insights from scientist interviews, specifically Dr. Bruce Fouke and Dr. Jim Nardi as they both spoke of the abstract qualities of geological time-scales.

As well in the first part of my thesis I explored items within my surroundings that I believed altered times, the figure below, as well as analyzing my relationship to my plants, which in their own way have become timekeepers of my ability to care for a living creature, particularly the growth of my monstera which I received when I first came to Seattle and is a tangible symbol of my past two years.

For designers there is the concern of "who looses out when time management tools attempt to sustain coordination, not through negotiations between social actors, but through an autonomous algorithm" (Pschetz 2017, pg. 173)I therefore proceeded to creating prototypes that might help to shift the way a person might usually consider time.

To situate my knowledge I read Carlo Rovelli's ***Order of Time*** which communicates physics around time and the blurring of human perception when trying to quantify time (Rovelli, 2019).

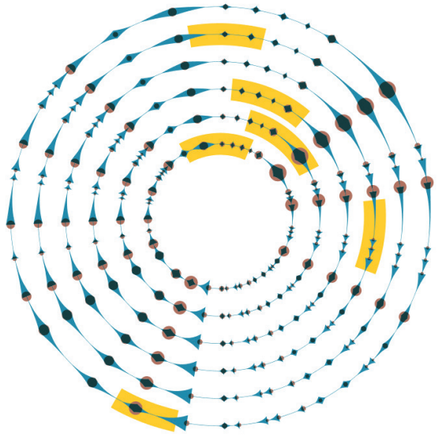
INSPIRATIONAL "DEEP TIME" DESIGNS EXAMPLES

"Moreover, a piece of art – whether it is a painting or a play – has the potential to endure longer than a policy paper or political initiative. It is often tended, reproduced and preserved as the ages pass, making it one of most enduring legacies a human being can leave for the world."

- Robert Fisher, The Perils of Short-termism: Civilizations Greatest Threat

Longplayer

The longplayer is a one-thousand year long composition. At the end of 2019 it will have been playing for 20 years. Its purpose is to examine the experience of time.



LONGPLAYER

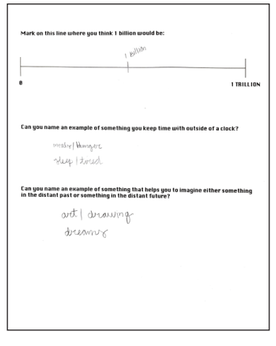
PENTAGRAM

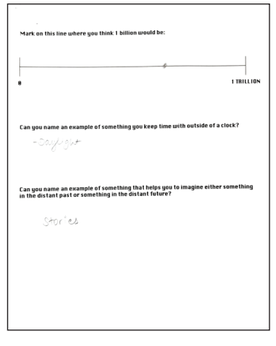
Doomsday Clock
Logo for The Atomic Bulletin

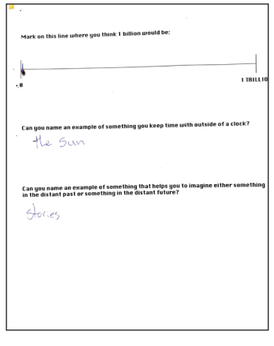
Inspired by Martyl Langsdorf first cover for The Atomic Bulletin, the clock became Pentagram's inspiration for the publication's branding. By alluding two our self destruction chances through the metaphor of seconds it helps the public feel the pressure of understanding how our immediate actions effect our long-term survival.

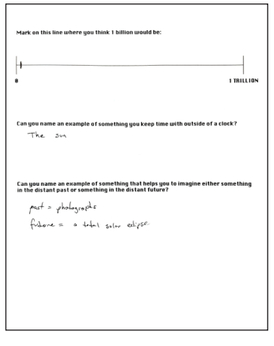
"Its non-specific neutrality has permitted the Bulletin to integrate data on bio-terrorism and climate change into the yearly scientific assessment, which has led to 20 changes to the position of the clock's hands over the past 65 years." –Micheal Beirut

Testing Participants







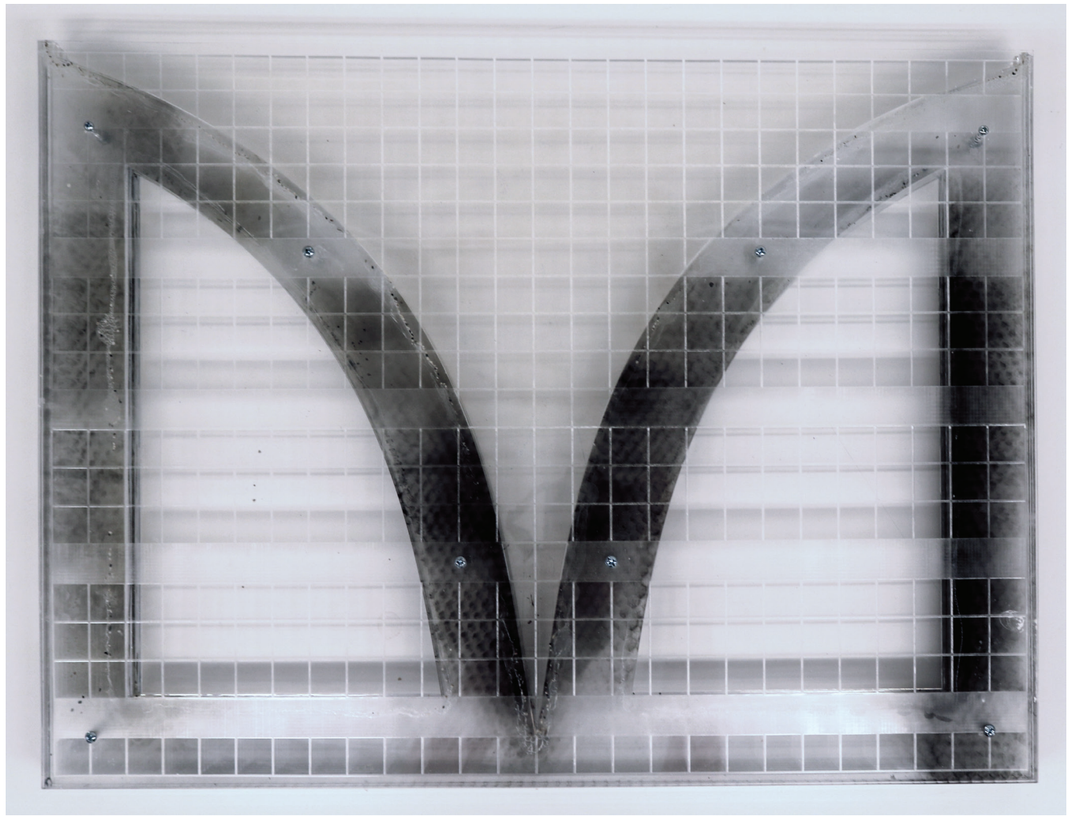


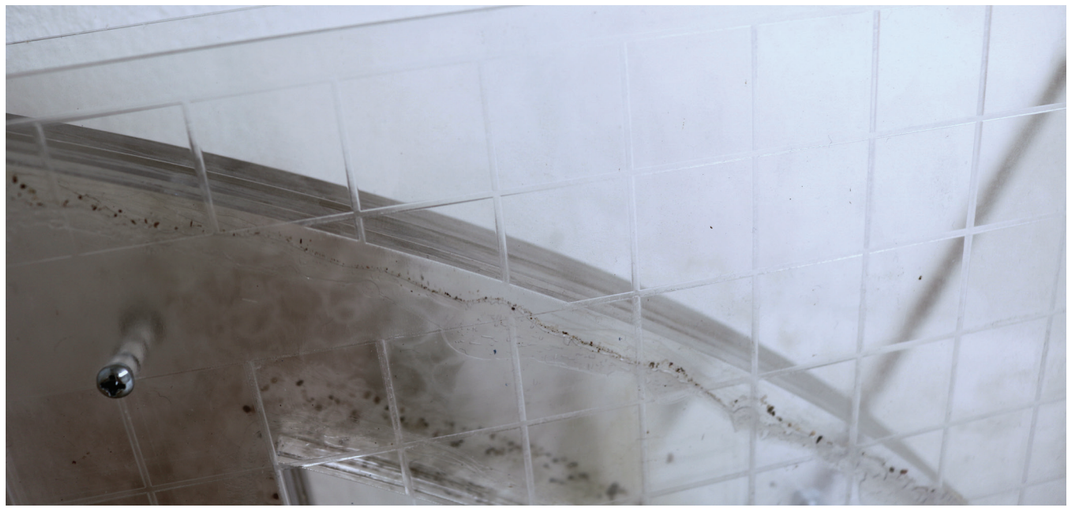
Surveys

TESTING

I tested these "alternate experiences" of time with four different participants and one practice participant. Each participant engage with four different artifacts, each relating to a different sense, while blindfolded. The first dealt with weight, the second touch, the third scent, and the last sound. These were chose based real world inspiration and underused material for information representation. I recorded these interactions between the participants and the artifacts on film while I led the subject through each experience, working to reveal as little as possible of the purpose of each artifact but encouraging the users to describe their reactions. Prior through these activities participants were give a sheet of paper with some leading questions on time, these were meant to gauge what their emotional and intellectual concerns around time.

After each participant finished the "alternate experiences" they were told their purpose and questioned about each artifacts.



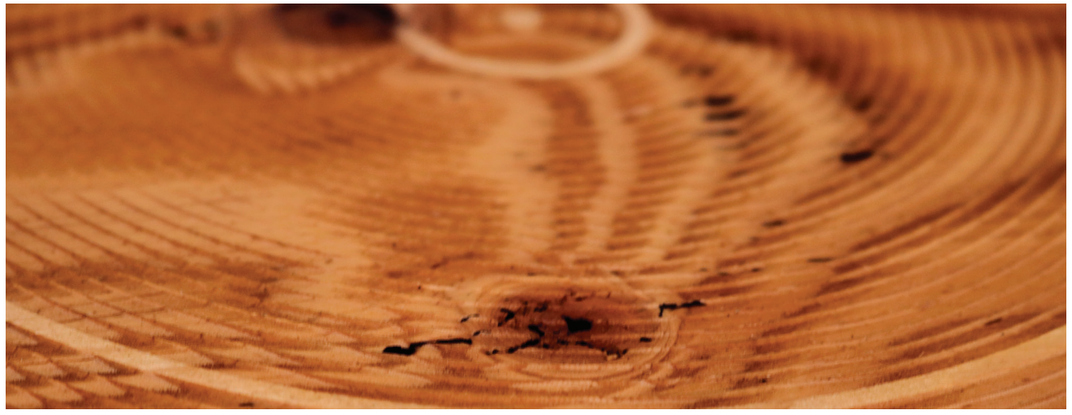


WEIGHT

To create an exponential increase in weight I built a funnel. This allowed me to pour sand in, a reference to hourglasses, at a steady weight and pausing at specific points. Figuring out the exact formula for the curve of the funnel was perhaps the most challenging of this experiment, and along with the heaviness of the funnel are perhaps the two main areas where this experience could be improved. Although exponentials of ten were used in the original design, but this didn't allow for enough weight change as the funnel was very thin. Instead the curve of the graph was change to fit the function of the golden ratio

Through testing, I discovered that the discomfort of holding the weight up caused the greatest impact on the participants. Still they found the experience somewhat memorable compared to the other four.

Therefore while weight might be useful for demonstrating the effort of long-term thinking it does not spark the same desire of engagement that the other experiences with time did.

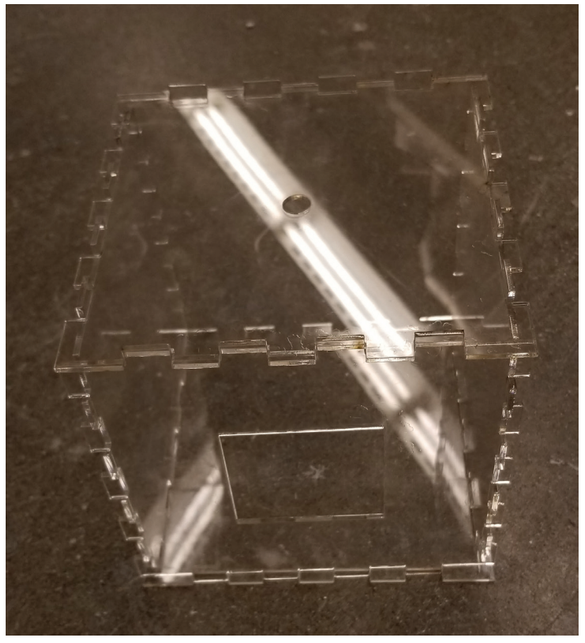


TOUCH

Inspired by tree-rings, objects that show time recorded in a living creature whose time-lines are often far outside our own. For instance the Bristol Cone pine trees in Indio, California, that have ages upwards to 5000 years old. Experiencing these trees first hand can instantly shift ones perspective of time, but these trees exist in a couple small forest in the Southwest and it is this seclusion and rarity that gives them such impact.

To create a designed version of these experiencing that did not require an actual tree-ring, I manufactured a laser cut disc with 100 uniform rings that included thicker bands at 5, 25 and 72. The numbers 5, 25 and 100 were chosen as exponentials, while 72 was marked due to being the average life span of a human.

Participants remarked that this experience of all four resonated with them the most. The mentioned that its similarity to tree rings helped to give the artifact extra meaning as well as the sensations were the strongest for them.



An original idea was to have a box each participant would place their nose in and drops would be added exponentially through the top hole. This proved undesirable as there would be no way to remove the scent between tests. There for I opted to use three vials of different concentrations of drops of patchouli.

SCENT

Smell is very subjective because of memories tied to certain scents. But because of that people have strong reactions to it. One such example in design is a work by Superflux. They created a representation of what air might be like down the road in the future and invited CEOs working with pollutants to experience it (Superflux). This project interested me as it created a visceral reaction, placing people in the future and I was curious about experimenting with smell as a time-teller. To do this I saturated each vial with an exponential amount of perfume.

However in the experiment I quickly discovered that smell's subjective qualities can also be dependent on amount. Two participants remarked that they believed the smells were different and did not realize that rather they were different concentrations. Another focused in on his individual memories of the scent rather than attempting to interpret the differences among the scents.

This information, though not supportive of a connection between scent and time, is intriguing. I believe that more research could be investigated to create a tailored experience of time with scent as it can jog memories from the distant past. The fascinating thing would the to how to tie in Superflux's design with the individual to help them in long-term thinking rather than creating nostalgic experiences. Perhaps this may be through designing a scent connected solely to long-term thinking (i.e. perfume of the future) in order to work as a daily reminder to individuals of the needs of considering how actions effect the distant future.

ON SILENCE

To understand art & sound I looked to John Cage.

In John Cage's 4'33'' the musical piece asked of the audience an appreciation for silence in music, and gave them time to acknowledge and analyze how much noise there actually is in these pauses. It causes an active participation of listening to passive noise.

"Silence is not acoustic. It is a change of mind, a turning around." – John Cage

It seems to me that it isn't just a change of mind, but also that silence is a change in time. To experience this for myself I used a deprivation tank, to try to understand how a lack of senses might adjust my interpretation of time. There was a great strangeness in how much work there was to do nothing despite the lack of stimuli.

"Silence, similarly, is relational rather than absolute."
–Susan Sontag

SOUND

Using sound was inspired by both art and scientific experimentation. Partially through studying John Cage's work and partially by the scientist Wanda Diaz Merced an astrophysicist who, after she lost her sight, studies her data through sonification, and by understanding this data in another manner has found different insights from it then those studying it purely from a visual point of view.

Due to this I choose a sonification of the sun that NASA released as it was ambient and unrecognizable to the participants, I hoped this would help them to focus on the three pauses in the recording I played for them. The first pause is only a second, the next ten seconds, and the last 100 seconds. Again playing of exponentials.

However, when participants experienced the spacing they were unable to create a concrete interpretation. I believe this was partly due to the expanse of the silence and the anticipation for sound due to headphones, as well as the need to hear things multiple time in order to realize the pattern. This is due to the different ways in which people have knowledge of sound. For instance a savant musician or someone who depends on their hearing to get around. A person unconcerned with noise might not have a knowledgeable ear. This is true for any person more sensitive to a certain sense. It would be interesting to expand this research into sound and time through a learning creation, that helps to train the ear to timing.

METHODS

"Conceptual Design means a parallel space of speculation that uses hypothetical futures."
-Dunne & Raby, Speculative Design

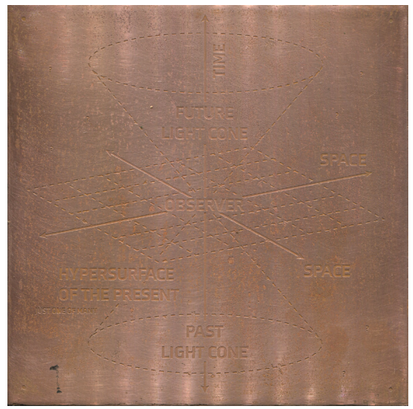
After reviewing what I had learned from my experiments, I began ideating how this might all come together into a single artifact. Having found that touch was particularly impactful I first imagined translating a piece of data around long time-scales into a tactile experience. Yet I was still interested in a more subjective experience with time, rather then creating a single alternate mode of communication.

In that space of mind, I was inspired by *Froebel's Gifts*. There were a group of objects designed by Fredrich Froebel, who started the first kindergartens, to help activate learning through play and creativity rather then memorization (Mars 2019).

Applying this back to my focus of time, I set out to create an object that could help one to learn to think long term.

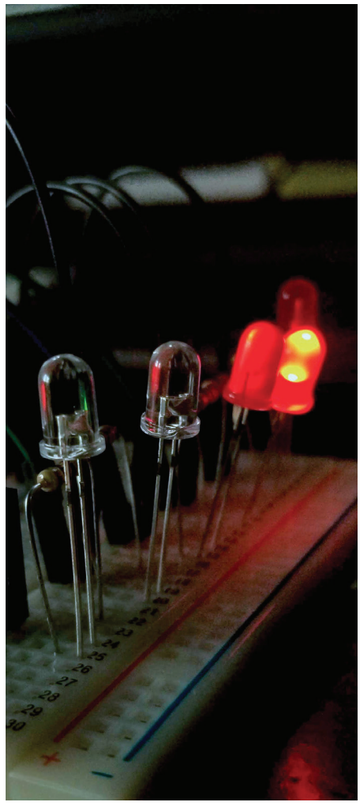
Refurbishing the Table:

Due to the degradation of forests, I chose to make sure my final project was made from reused wood. I explored SECOND USE in Seattle to find recycled material. While there I found the writing table above. Due to my inspiration from Frobel's Gifts I decided to use this as the container for my time experiences, in that way symbolizing a learning experience. However to ready the table, I stripped the varnish, then re-varnished it and oiled it to create a finished piece for display.



Creating the Copper Plates:

The process of making the copper plate involved searching for alternatives to using a studio. First was using a transfer on plastic to iron on the areas where the etching solution would not degrade the plate. Next was using liver of sulfide to oxidize the copper plate which over time will be degraded by oils on the fingers to reveal the etched inscription.



Programming ambient exponential lights:

Inspired by *Slow Technology* (Hallnäs 2001) to maintain some aspects of ambient media to alter time sensations I programmed a set of six LED lights with an ardiuno board to decay at an exponential rate of 2.7 which seemed a fitting number as it is the rounded value of e which is the natural base that appears in statistics of nature, for example entropy which relates to the directionality of time.

Creating the interior space of the desk:

Because of the futures otherworldly quality to a present day person, I wanted to craft a space with the desk that transported the user, almost a "down the rabbit hole" quality. In Kenya Hara's book "Ex-formations" he asks "is communication possible which, rather than making the world known, makes people understand how little they know of the world?" (Hara 2015, pg. 15). A fitting question for time, a concept that exists between the mundane and undefinable.

To create this otherworld, I sewed moss-like beans from cloth, collaging them together to create a soft, organic skin to the inside of the desk. However, a goal with the project was not to create excess waste, I therefore went to the store Ragfinery in Bellingham to purchase recycled sewing materials to help fight clothing waste.

PLAYTIME DESK

In the finalized design, all the components are combined into the refurbished desk. On top lays one of the copper etchings, it displays a time-cone, an acknowledgment that time exists differently in different space, like perhaps this desk. On top of the desk there are little letters that are welcome to be written on as one might consider future time-scales, perhaps rubbing away at the oxidizes copper as they do so.

However, the world is filled with distractions that focus us on short-term thinking, it is then that the writer should be encouraged to open the desk and play with the objects inside. Picking up the tree-ring that contains a thick band at 72, a memento-mori through touch. Or becoming hypnotized by the lights, that ask you to follow their elongated rhythms.

An alternative perspective to push you towards long-term thinking and reminding you that this is just "one of many presents".

If this project could continue, I would like to make the desk even more moldable, so that it could become unique to the individual. Perhaps through alternate timing of the lights, instructions for creating new "presents", or becoming a larger installation.

Clockwise from Left: Smaller Tree Ring, Playtime Desk, Playtime Desk open

Still frame from video demonstrating the writing component and the long-term thinking materials insides of the Playtime desk

Still frame from video of 3x Speed of lights flashing

Detail Images

Interior, copper plate says “One of Many Presents” a reference both to theories of time and Froebel’s gifts.

FIN

GLOSSARY

ANTHROPOCENE - a new era where the greatest geological change is caused by humanity

COGNITIVE DISSONANCE - is the tension created when our beliefs are contradicted by new information (see Aesop's fable The Fox and the Grapes)

DEEP ECOLOGY-is a philosophy that promotes the equal value of all resources regardless of their contribution to human society, as well as the radical reconstructing of society in light of these ideas

EMERGENCE- In philosophy, systems theory, science, and art, emergence is a phenomenon whereby larger entities arise through interactions among smaller or simpler entities such that the larger entities exhibit properties the smaller/simpler entities do not exhibit

FLUX - both a art and term and a physics term, fluxes refers to a group of artists in the second half of the twentieth century that created artworks with instructions and as the name suggests works that existed in constant flux rather than as permanent pieces

MEMENTO MORI - a term for a piece of art meant to remind one of their mortality, most often represented as oil still lives of items that symbolize luxury contrasted with those that symbolize death, they were used to remind their owners in the Renaissance that life is temporary

TRAGEDY OF THE COMMONS - is a social science term that an individual has the tendency to act in the desire of self-interest even when it is contrary to the common good of all users, which leads to strained resources

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