

Electroenvironment

Outdated technology figuratively and literally clutters our environment on a global scale. Whether online or IRL, old technology gives into new, forever reconstituting the past into emerging forms that are sometimes unrecognizable but often coated with a veneer of nostalgia. Advanced (and *NEW!*) technology that allows us to recontextualize our world is a sapling from a felled Oak that was so nurturing before succumbing to its fate from mankind. As this seed grows, you can experience the stories written on the leaves, connecting narrative tines to the roots of techno-history. These evolutions cross all mediums, from oxen to the steam engine, cave paintings to interactive VR simulations. All are an artform as well as a practice in reinterpreting our world using our senses while listening for, and rephrasing echoes of the past. This recycling of media, data, mechanical mechanisms, and mediums is a complicated dance as music has reverberated for generations. Power and control have always taken the lead in this Waltz while *we* dance to the tune with unnerving hope that our partner will not lead us astray. But what if we took the lead? Humanity could create new steps for an awesome revelry, and rectifying our past mistakes while humming our *own* tune. To quote *Men Without Hats*:

“We can dance if we want to
We can leave your friends behind
'Cause your friends don't dance
And if they don't dance
Well, they're no friends of mine”

In the late 1700's, the industrial revolution was in full swing around the world. The mechanization and discoveries of electrochemical processes that fueled the production of iron, fossil fuels and steam engines changed our world forever. This disruption in our global society would not be seen again until the Information Age of the early 21st century. So as the world moved from hand tools to assisted mechanization, our society and environment parallel the pace of industrialization. Not only would the standard of living rise with wages as western countries prospered, the physical landscape of the planet would be terraformed in pursuit of natural resources to support the growing world population (1). When populations moved from urban to rural areas, the need for food, transportation, textiles, energy, and entertainment briskly kept pace with newly literate consumers. More people had free time and money than ever before to pursue interests in art, entertainment, and media. The world *had* changed. 18th and 19th western societies were relying on various forms of media to enlighten them of world events and deliver never before seen spectacles based on the rapid transfer of knowledge that an industrialized society brings. We changed from a society that once experienced first-hand a small tangible world, to one that was largely informed of global happenings or

experiences through media and entertainment. This new inundation of information would lead to a “challenge of comprehension” as information about the 18th century was presented in media without context or experience. However, the question of, “How can we comprehend what we can’t experience?” is a little heavy and will be discussed later in this article.

Out of all the media and entertainment mediums of the late 18th and 19th centuries (and there were a lot of them, too many to mention here) there was a particular form that delighted observers all around the world. A spectacle of grand, and sometimes not so grand, proportions. One that immersed audiences with views and experiences that were outside the reach of the average factory or farm worker of the time. One that achieved, for the first time, and “Immersive” experience when compared to all mediums that came before it. The Panorama.

For the sake of confusion. I will be using the definition that Panorama took on in 1791. As after the 1800’s, the term panorama went on to represent a myriad of mediums. More specifically, when I refer to panoramas, I will be referring to rotunda style panoramas and their offspring, the moving panorama. Erkki Huhtamo’s book entitled, *Illusions in Motion* further defines, “Circular panoramas emphasized immersion into a place or event, while moving panoramas relied more on narration and combinations of different means of expression” (2). Huhtamo’s research is spectacular in this area of *media archology* surrounding this early immersive medium and they go on to discuss some of the press that was generated from these first experiences:

“Those who routinely use this word may not realize that it was coined with a very specific cultural object in mind. As far as we know, it appeared in print for the first time on Saturday, May 18, 1791, in an advertisement promoting “the greatest improvement to the art of painting that has ever yet been discovered.” The reader found out that a “Panorama building” had been “erected on the Spacious Ground behind Mr. Barker’s House, No 28, Castle-street, Leicester square” (London). It housed a painting covering “one thousand four hundred and seventy-nine square-feet,” depicting “one of the best known Scenes in Europe; which, without any other deception than the simple art of the Pencil, appears the same as Nature in extent, and every other particular” [...]



Figure 1 - Leicester Square Rotunda

This “improvement to the art of painting” was the work of Robert Barker, an Irish-born painter from Edinburgh, who patented in 1787 An Entire New Contrivance

or Apparatus, which I Call La Nature à Coup d'Oeil, for the Purpose of Displaying Views of Nature at large by Oil Painting, Fresco, Water Colors, Crayons, or any other Mode of Painting or Drawing. An enormous painting of a single location was stretched horizontally along the inner wall of a cylindrical building, so that its ends merged seamlessly. When the visitors climbed onto the viewing platform at the center of the building, they were meant to feel, as Barker put it, "as if really on the very spot" (2).

The Leicester Square Panorama or the "Barker Panorama" became an instant hit when it was installed as a permanent exhibit in 1793, creating a new market of media consumers in the process. Even a 20th century Walter Benjamin bought into this entertainment media "progress":

"For Walter Benjamin the circular panorama epitomized the triumphant urban modernity (2) "Announcing an upheaval in the relation of art to technology, panoramas are at the same time an expression of a new attitude toward life. The city dweller, whose political supremacy over the provinces is demonstrated many times in the course of the century, attempts to bring the countryside into town. In panoramas, the city opens out to landscape—as it will do later, in subtler fashion, for the flâneurs" (3).

Even though Benjamin may have recognized the impact of "art and technology[s]" ability to express "a new attitude toward life", he may have expressed a bit too much optimism in his historical critique. As this influential medium would go on to spur moving panoramas that used auditory devices such as music and narration (much like modern media) to depict historical scenes, leaving the retelling of history to those who financed this traveling entertainment endeavor. Huhtamo again writes:

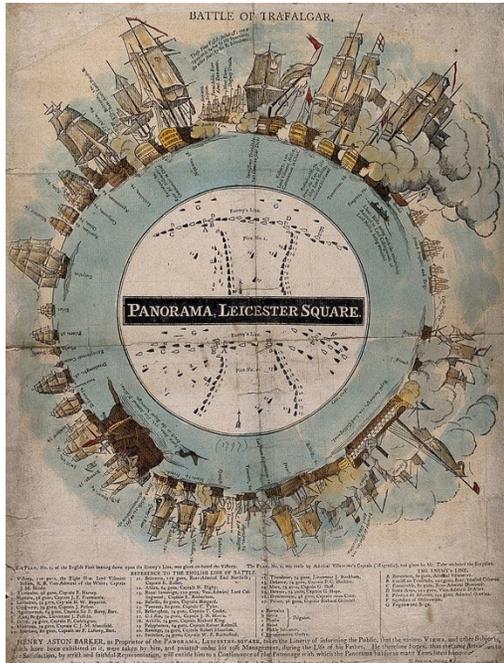


Figure 2 - Battle of Trafalgar

“The moving panorama was different: it was an itinerant medium. Although many were exhibited in cities, the showmen were on the move, also visiting the countryside and smaller communities. They exhibited in community halls, local opera houses, theaters, and churches. Successful moving panoramas toured for years. Their titles could be changed, scenes added, and even their subject matter”[...] Although it was not wired in the sense of broadcasting or the Internet, it was capable of teleporting its audience to another location, and dissolving the boundary between local existence and global vision. In an era when globetrotting for pleasure and organized mass tourism were taking their first timid steps, panoramas presented resplendent representations of exotic environments and

current hotspots. Paris and Istanbul, as well as the battlefields of Waterloo and Gettysburg, were visited by spectators, who became “global citizens” avant la lettre. (2)”

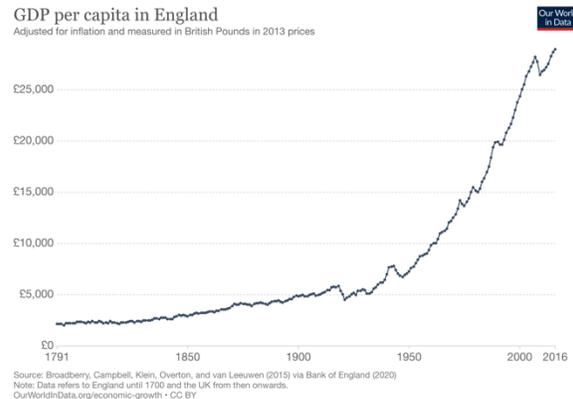
However, Benjamin was a proponent of redemptive history (4). His analysis of the Barker Panorama forgot to question who gets to tell the stories about Waterloo and Gettysburg. The victors? Was this critique administered too early in his career to question the authority in which these panoramas were painted, who painted them, and what point of view they depicted? If given the chance to go back and revise his perception of the panorama, would he wax philosophic about the lack of voices and experiences of the marginalized? Or possibly he saw the application of the Panorama as a mechanism to speak to the future and a proto-utopian form of “progress” via speculation.

I often wonder how Walter Benjamin or André Bazin would have curated an “immersive” Panoramic experience together, given their seemingly parallel views that history and reality are linked. My view is that since they would have curated a Panorama from two different cultures and divisions in history/locale, their realities, among other things, would be widely different. However, I would gladly pay for that ticket, especially if they were given modern technology to apply the ideals of “total cinema.” Bazin may have been able to realize the technological goal of representing “total” reality would be close at hand in the 21st century (5). Even if our socioeconomic culture and landscapes were now *vastly* different than their personal realities of the 20th century. A wise man once said, “Life moves pretty fast. If you don't stop and look around once in a while, you could miss it” (6).

“We must find another relationship to nature besides reification, possession, appropriation, and nostalgia” because, without new ways of thinking, new relations are impossible” (7).

- Donna Haraway

Progress... How far have we come from the medium of rotunda/moving panoramas in the past two centuries? I'm not necessarily talking about media or technology, per se. How far have our realities come? Are we in such a different world than André Bazin's post World-War French film criticisms or Walter Benjamin's nomadic (and tragic) escapes from Nazi rule? There must have been some progress in the quality of life, at least here in the United States given the resources



the US Federal Government has given the science and research communities since WWI, right? How do we determine quality of life for our reality in the 2020's? Should we rely on quantitative or qualitative data to determine the state of reality placed within our past and our future? Benjamin would have wanted us to decontextualize and reinterpret our histories. To hear and decode the echo's past and future into our present view.

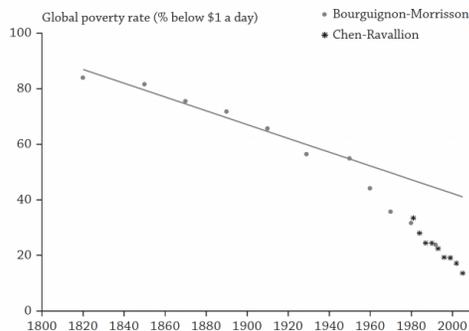
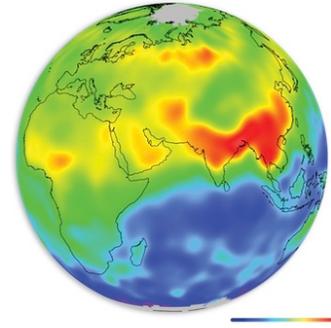


Figure 2.1 Global Poverty Rates, 1820–2005. Sources: Author's calculations from the data base used by Bourguignon and Morrisson (2002) (kindly provided by the authors) and from Chen and Ravallion (2010a).

So, I ask you dear reader. Why should we care about the quality of every single life on this planet? Maybe we shouldn't. Plenty in western culture are more than happy to bury their head in the hot sand, impervious to change and compassion. It is my position that we *should* care. Pardon the dramatic, but our world is the only world that we currently inhabit. I believe that we should use all the tools available in our historical, scientific, and artistic arsenal to admit to our past mistakes, move on, and find a way to prosper. But first,

we need to analyze our current problems, understand how we got here and vehemently advocate for our future. Should we look at the past as a comparison to our current reality, or our current reality and compare it with the future? Benjamin would support my advocacy for redeeming history. So, if we look for past and future societal disruptions, I can only see one concern in our current world that affects every precious living thing on our pale blue dot. Climate change.

There is nothing so hotly contested in the United States and around the world than climate change. Discussions about whether climate change is a natural phenomenon, an economic issue, an avoidable nuisance, or even real at all, inhabit our kitchen table, permeate our social networks, and fill up our political airwaves. These discussions orbit around a single belief system or question. Can we trust the science?



Global concentrations of atmospheric methane produced by ESA CCI from satellite data provide important information about the distribution of sources and sinks of this powerful greenhouse gas. Source: ESA.

In Candis Callison's, *How Climate Change Comes to Matter: The Communal Life of Facts*, she discusses the current social climate around science and its interpretation of hundreds, if not thousands of years of global environmental the data. "The public understanding of science" model, which is primarily about increasing scientific literacy and imparting authoritative facts to the public, is already morphing into a model of apprehending and addressing beliefs, meanings, and feelings around climate change" (8). Are there ways to interpret climate change other than the "authoritative facts" brought upon by scientific data? Can qualitative data be used to spur changes in beliefs about climate change? In *Ecosickness in Contemporary U.S. Fiction: Environment and Affect*, Heather Houser investigates the correlation between data and emotional response and, like many topics in the research community, found another conundrum to ponder:

"I concluded that study with the question, how does environmental information feel when it appears in day-to-day life? For example, when talking to a coworker or family member about recent droughts, hurricanes, or wildfires; when opening a news app on a smartphone; when watching a movie or reading a book of poems. I wondered how data instigated emotion" (9).

Data instigating emotion. Emotional interaction may hold the key to understanding alternative ways to create belief and empathy for the effects of climate change. Can Positivism be causing more harm than good? I dismiss Callison's position that positivist epistemology is the argumentative stance which, "is primarily about increasing scientific literacy and imparting authoritative facts to the public". Can we find other ways to steer public opinion that have nothing to do with the deluge of scientific data on an already information overwhelmed (infowhelm'd) society? Heather Houser, author of *Infowhelm: Environmental Art and Literature in an Age of Data*, seems to have some ideas about additional qualitative data that might be missing from this conversation:

"Positivist epistemology is often esteemed as the ideal of Eurowestern natural sciences. It holds that legitimate knowledge of real-world phenomena is based in logic, observability, objectivity, and universality and is verifiable, preferably through quantitative measures. It is one of the "epistemologies of mastery" that thinkers in indigenous studies and feminist science studies have eroded by detailing the affordances of ways of knowing based in speculation,

multigenerational experience, social relations, metaphor and story, and the sensing and feeling body” (9).

Trust in the scientific community has waned due to misinformation, ideological beliefs and emotion. So, when the quantitative data is disputed, Houser moves beyond the traditional and often ineffective methods of persuasion through positivist epistemologies. By envisioning and critiquing artists that use “data as media” (10), Houser sees art as an interpretive tool to evoke understanding and urgency. Ecoactivism through the arts may hold the key to connecting an emotional response to scientific conclusions or, “art’s potential to produce environmental knowledge” (9). She goes on to defend her position:

“Readers might assume this book [Infowhelm] and the art it examines roundly denounce positivism for being linked to that trio of actions Haraway condemns: “reification, possession, appropriation.” And this might seem unwise at a historical moment when there are powerful partisan efforts to undermine and even destroy scientific knowledge, specifically about pollution and climate change. However, I want to underscore the necessity of as well as the limits to positivism for environmental understanding today” [...]

Artists entangle epistemologies by turning scientific information into a representational device in its own right. *That is, information becomes a distinct aesthetic element and a space of interpretive activity that diagnoses infowhelm—and, in some cases, even reproduces it—and experiments with ways of managing it.*[...] environmental art is a crucible for producing knowledge of that world that is reducible neither to positivism nor to epistemologies rooted in speculation, emotion, embodiment, or unknowing” (9).

Here in the United States we are still a democracy. Although there are threats to this democracy every day, we still have the choice in our leadership. These governance choices start at the community level and are swayed by public opinion. This public opinion can be generalized or broken down into specific community group where beliefs, attitudes, and advocacy reside. To convince government, politicians, state leaders and agencies to react to our changing climate, we need more than data and scientific conclusions. We need to look at our history here in the States and find powerful, and experiential stories that cast a swath of empathy and authenticity that changes public opinion and shapes the imperatives of our leadership. Kyle Powys Whyte’s book, *Indigenous Climate Change Studies: Indigenizing Futures, Decolonizing the Anthropocene* advocates for indigenous voices shaping this conversation as their relationship to our past and future are interconnected and often missing from qualitative data collection and the story of their land. He states, “systems of monitoring, recording, communicating, and learning about the relationships among humans, nonhuman plants and animals, and ecosystems that are required for any society to survive and flourish in particular ecosystems” (11).

Enter the *Electroenvironment: A Digital Panorama*

Electroenvironment is a digital panoramic installation that uses active volumetric display systems in conjunction with the traditional/moving panoramic experiences popularized in the late 1700s. This modern intervention of the moving panoramas of the past allows new narratives to emerge from modern dilemmas. More acutely, Electroenvironment brings an augmented reality experience to audiences through a shared experience of future climate change. As a mobile installation, the experience will be tailored to several locations to showcase its innovative narrative form. Urban, seaside, and rural landscapes will be the home to Electroenvironment, providing a digital intermediate that augments that surrounding reality. This intermediate augmentation layer provides a



Figure 3 - *Electroenvironment Scale Model 1:16*

3D overlay of the surroundings via the installation as guests see and interact with what the surrounding landscapes will be transformed into if climate change is not addressed locally. Seaside's will be transformed into bogs as expected sea levels rise, urban landscapes will be morphed into arid, flooded climates as global temperatures soar, and rural, wooded locations become arid deserts as local fauna die-off due to adverse microclimate change. Narrative intent hinges on revealing the future for those who either have not come to terms with the global collapse of ecosystems or the *local* effects that climate change will have on their communities. They will be taken back in time to



Figure 4 - *Electroenvironment Entrance*

before the first industrial revolution. Delivered to the sights and sounds of a simpler time. Then, as they progress vertically through the installation, shown the effects that our “progress” has had on our landscape. Electroenvironment will provide interactors with a grand transformation of their worldview, like those who experienced traveling panoramas that transported audiences of the 1800s around the world without leaving their towns.

The narratives that will be showcased in Electroenvironment will be written in conjunction with indigenous voices from the Canim Lake Band Tsq'escen, Lakota, and Navajo tribes through an ethnographic 360 video documentary project called *The Future American Retrospective* - environmentalism started in 2018 (www.farvr.org). Through this partnership, Native American voices, musicians,

graphic illustrators, and special effects artists borrowed from the film production industry will provide the audio/visual backdrop and storylines in Electroenvironment. Specifically, much of the climate activism viewpoints and narration will be voiced by Julian Brave Noisecat, Vice President of Policy & Strategy with [Data for Progress](#), the Narrative Change Director of [The Natural History Museum](#), an artist and activist collective, and a fellow at the [Type Media Center](#), [NDN Collective](#) and the [Center for Humans and Nature](#), among other titles. A focus on scientific data hiding in plain sight of the ethnographic and qualitative data will attempt to engage an emotional response from climate sceptics and believers alike. However, Electroenvironment will take a cue from Heather Houser’s work on critiquing climate artworks akin to this digital panorama:

“Environmental artists must often acknowledge their potential complicity in this paradigm of knowledge making when they repurpose scientific information. They do so by incorporating information in ways that foreground the history of the positivist paradigm and the technologies and media affiliated with it. Yet they also remake these histories, technologies, and media to produce what feminist philosopher Lorraine Code calls “successor epistemologies” (9)

To apply the “successor epistemologies”, Electroenvironment uses a host of modern technologies adapted from the special effects industry to operate the installation screens in real-time. This real-time 3D rendering of the augmented intermediate/interactive layer (AIL) for the interactor is emitted from semi-transparent micro-LED, flexible screens that follow the gaze of each interactor in real-time (12). The AIL will also be stereoscopic, allowing for true-depth, 3D visuals that will seem to blend into their surroundings. This AIL volume (The Volume) will allow for never-before-seen effects to be mapped onto the surrounding environment allowing for digital cinematics to either overtake the gaze of the interactor or augment the space outside the installation.



Figure 5 - A/V Tracking active shutter glasses

Before the interactors enter the installation volume, they are given active shutter glasses with embedded audio and head tracking modules. Upon entering the cylindrical installation volume, their gaze is transformed in real-time, mapped on the surrounding environment *outside the transparent* panoramic rotunda. They are encouraged to explore the space and are welcomed to a wheelchair accessible internal ramp that allows them to travel vertically up the column. The column can be described as a linear narrative space. By traveling vertically up the center ramp, the impacts of climate change are augmented via the AIL. Having the ability to look in 360 degrees as well as through the volume's ceiling, their outside environment is transformed into an all-encapsulating and immersive chronicle that adjusts the narrative gaze as they rise

through it. This audio-visual experience will allow visitors to peer into their localities' past and future, allowing them to fully comprehend how climate change will not only affect the world, but their immediate surroundings as well.



This project has its roots buried deep in our past technological and ecological progress. However, Electroenvironment will do much more than a fancy transportation through ecological time. As a responsible tool for ecocriticism Seymour reminds us “to model a reality in which environmental action takes place outside of knowledge” (13). This project will encourage action. It will encourage interchange. Upon leaving the digital rotunda, guests will be given the option to send a video/text message from kiosks. These video messages will be posted to social media outlets of their choice, but more importantly, they will be given the names and inboxes of their immediate leadership personnel in their state and county. This video message will be their immediate reaction and discoveries from the digital narrative and communicated to their local, state and federal policymakers. The guests will also receive information (based on their zip code) of the ecological stance/viewpoint of every leader that is in a policymaking position in their locale. This is an attempt to, again, extend the reality of Electroenvironment into the real world to assign a human face and personal ideology to those in power, emphasizing the fact that *everyone* should be held accountable to our environment.

Electroenvironment as an environmental history intervention insists that data (the digital) run up-to and intercede with our reality. Visitors will be challenged to discern between the real world and one that is digitally manipulated to represent our past and future environments. This digital intermediate intersects the “air gap” between their notions about the environment and the world outside the installation. The experience allows us to reconsider the history of our planet and recuperates us from the seemingly invisible, incremental damage of the environment over time. Visitors will get their first chance to remediate their views on the global environment via its local impact. The data will be visualized as immediate ecological impact, told by voices that may disagree with western histories and political ideologies. As “Wisdom is holding two contradictory truths in our mind, simultaneously” (14).

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