Future Earth Catalog:
Urban Design in Climate Change

by

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ABSTRACT

What is the agency of urban planning and design in climate change? This project explores new ways of engaging with the environmental narrative of our time. I present Future Earth Catalog as six representations of the same body of research, spanning a spectrum from academic thesis to media object, and catalog to playbook. The project departs from convention, both in process and product, in order to place learning and practice into an unfamiliar territory and form a new dynamic with climate change. This is a work in progress, to see the full project please visit www.futureearthcatalog.com.

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Future Earth Catalog:
The Urban Age in Climate Change

What is the agency of urban design in climate change? This project breaks from conventions of urban design practice, climate change perception, and academic research methods to explore new ways of engaging with the environmental narrative of our time. It is rooted in a conviction that the discipline has more to offer than weaving gray and green infrastructure into urban space.

Meaningful engagement with a new present and uncertain future Earth requires a radical shift in the collective conscious—a revisionist history through storytelling and representation methods. I argue that climate and risk, as cultural and historical constructions, have been shaped by three pillars of perception: science, politics, and media. These three pillars frame narratives of climate and risk in ways that, intentionally or not, steer individual and collective behavior in response to climate change. I offer new ways of seeing and knowing through the skills of my professional degree to do two things: test urban design as process-oriented rather than product-oriented problem-solving (in non spatial forms), and shape a new course of action through conceptions of climate and risk that allow for visions of the future that are not limited by present barriers, real or perceived.

I present Future Earth Catalog as six representations of the same body of research, spanning a spectrum from academic thesis to media object, and catalog to playbook. I depart from convention both in process and product. Conventional research methods are breached in order to place urban design into an unfamiliar territory and form a new dynamic with climate change.
Conventional forms of academic work are breached in order to reach audiences beyond the discipline and represent critical analysis as a project — *access to tools*. A *Future Earth* does not discount the present. The notion of future speaks to the visioning of a distant time as well as to the tools we need now to get there. Future is also a response to the *Doomed Earth Catalog*, a recent cover story in New York Magazine, and the sensationalist “end of the world” narratives that exist in journalism, activism, science, and fiction.

The *Whole Earth Catalog* is deployed not as a book but as a framework to guide the reader into unfamiliar territory. If the *Whole Earth Catalog* convened the mess of the counterculture movement into one frame, revealing consistencies across a range of values and missions, the *Future Earth Catalog* attempts to do the same — to layer the developments of urban design and climate change in order to thread a new dynamic. This new dynamic convenes around the following topics: scales of time and space (global to local), modes of knowledge production (systems of power, local knowledge), individual agency in risk society, collaborative storytelling (is and ought), and worlding worlds (design science fiction). These guiding themes are embedded throughout the volume, both explicitly and implicitly.

Section One *Introduction* is the white paper produced in fulfillment of my degree. Section Two *Frame your own Narrative* presents a fold-out timeline that serves as the platform for the rest of the volume. *Constructing Risk & Climate* traces the development of energy culture, disaster perception and environmental awareness in the U.S. through fifteen filters that fall under the categories of science, politics, and media. Section Three *Exhibition* catalogs urban design precedents and climate change representation to be used as learning tools and evidence. Section
Four **Urban Dictionary** is a lexicon of terms and concepts to know in climate discourse. As an etymology and access device for further inquiry, I identify origins, discourse, and authors to know. Section Five **Climate Change & The Urban Age** is an exercise in representing my thesis in visual form. Section Six **World your World: New York 3000** convenes the ideas presented throughout the volume in a site-specific exercise. **Storytelling Speculative Scenarios** is a series of images, prompts, and activities. It is a personal response to helplessness and denialism—a rejection in favor of informed optimism and a first stab at action.

Stewart Brand opens the **Whole Earth Catalog** with two statements that speak clearly to my intention in creating the volume and its use. I borrow this method and begin each section with function and purpose statements to guide you through, with my overall statements below as they relate to Brand’s.

**FUNCTION:** “an evaluation and access device,” a database-in-progress of tools for learning and action. The volume should be approached as a working document in no particular order. All six sections are points of entry, with Frame your Own Narrative as the main platform.

**PURPOSE:** “power of the individual to conduct his own education, find his own inspiration, shape his own environment, and share his adventure with whoever is interested.” Future Earth Catalog is a metaproject. I guide you through my research and present my adventure as a project for you to do the same. I implicate myself in an effort to explain how urban design and climate change evolved into one topic, to be transparent about my method of knowledge production, and to call attention to my position as author. I am asking you to “frame your own narrative” with an awareness that you are already within my narrative. In this sense, the volume should not be considered exhaustive or objective. There is no God’s trick of seeing everything from nowhere. The stylistic scrappiness of the volume is a critique of polished forms of representation that claim to be universal truths or science fact, without acknowledging inherent biases. (White papers, reports, policy, climate models, etc.)
Audience

The Yale Program on Climate Communication identifies six attitudes towards climate change: alarmed, concerned, cautious, disengaged, doubtful, and dismissive. The first three add up to 73% of people. If counterculture and environmentalism in the 60’s and 70’s appealed to outlaws, rejecting environmental degradation, inequality, and the systems responsible — then today’s outlaws are 73% Open — the percent of the population that desires to reframe its understanding and behavior, but may not know how. Future Earth Catalog is a guide to being reflexive in risk society. Learn by reframing the narrative, think critically by taking a stance, and choose action by telling a story about how the world ought to be. By employing various forms of representation and writing style, I aim to engage any and all outlaws. By implicating the place of urban design within climate change, I aim to engage the outlaws within the discipline.

I have not even read Naomi Klein’s book This Changes Everything yet I catch myself using the phrase all the time. Never before has humanity been so sure of its record and also responsible for its future. We archive the Earth to produce big data — massive amounts of facts about the past.¹ We have progressed to a time when individual lives impact the Earth (every human has a measurable footprint) and we can measure it pretty well.² The environmental stewardship rhetoric of protecting the Earth for future generations evolved into a a dark form of


² Possibly began with the book Our Ecological Footprint. Also, I am thinking about a recent report that reflects on the 1970’s projections in Limits to Growth. The actual record and the projections are hauntingly aligned. Paul Edwards referenced this in his lecture at MIT in April.
activism as we started to see the world as parts-per-million of CO₂. The more we measure the past seems to be directly proportional to our imaginative capacity for the future. I am choosing to say measure to call out that having the data does not necessarily mean seeing or knowing it. And if science isn’t helping us learn the world, what is?

Media

I investigate the media as the primary source of information about climate change. If slow, chronic risk is beyond human perception, then it is always mediated through storytelling and imaging. Types of media, from art, cartoons, novels, books, advertisements, magazines, television, movies, news, and social media are examined. How each narrative is framed (headlines, hero/villain, tone, propaganda) reveals the intention and mechanism of the author. Tracing the influence of one narrative on other narratives, or on events in history, such as the connection between Rachel Carson’s Silent Spring to the regulation of DDT and creation of the EPA, reveals how it was perceived. Was it successful in its intention and targeted audience? Mapping media events with science, policy, activism, and statistics on a timeline reveal lineages that are analyzed in-depth. Alternatively, mapping also reveals moments that stand on their own: why for example, did Dr. Michael Mann’s “hockey stick graph” cause a massive stir in 1998, when Dr. James Hansen’s “this is happening now” address to Congress ten years earlier basically said the same thing?

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3 For example, responsibility for the future as the decision not to have a child: add to one’s own carbon footprint, or not bring life into bad Earth.
The Official Story

A new Earth demands new stories and new behaviors to understand and shape it. Not only does climate change operate at an intangible timescale — it forces us to reflect and act on an expanded one. Where does the story start and where does it end?

The story of climate change follows trends in popular culture, academia, science, and activism. It often begins with the Enlightenment and marks the Industrial Revolution as the start of the Anthropocene. The present moment is framed by the shocks or episodes that we may consider markers of stressors or chronic change. This is also how we account for past moments in our record — the Great Flood of 1927, the droughts of the mid-90’s, or the moment CO₂ concentrations doubled, etc. The near future (within one’s lifetime) is always included, but there is no general trend to where the timeline ends — the concept of the Anthropocene is not about “ongoingness.” 4 The story ends badly, but the end of the world is in some distant future.

It is interesting to examine the way different groups frame the present. Some aim to revise history, while others project the future:

Rhetoric of the past among historians or activists: in order to understand climate we must understand the birth of modern science and energy culture. Some go back to prehistoric times to account for geological transformation and the creation of fossil fuels, but humanity enters the picture with the combustion engine and the first time we drilled for oil.5

4 Haraway, 49.
5 Orff & Misrach, Petrochemical America (starts with dinosaurs). Morton, Hyperobjects “The Great Acceleration” as the beginning of the end. Lindstrom account of narrative framing of climate change in science non-fiction books.
Rhetoric of the future among scientists and scholars follows a different general trend: statistics on glacier melt and parts-per-million, and projections on population growth, urban growth, temperature rise, sea level rise, etc.\(^6\)

The point may be that looking back and looking forward are both narratives. They involve a process of grouping elements into a story. While elements of the past are a *record* (the most absolute truth?), elements of the future are *projections* (they are less true). This is not to say that scientific projection is not valid and valuable, but that it is limited and somewhat subjective. Projection is a sort of fiction.\(^7\) Narrative is then important to both fiction and non-fiction. It is used to know and tell the world. And the conflation of true-false in myth make it a powerful medium for knowing, telling, and *worlding* the world.

**Is and Ought**

"'Reason is the slave of the passions.'

Let’s put it so my regular folks will relate:

'Smarts lose to Feelings.'\(^8\)

"Concern undermines action,

unless accompanied by plausible plans."\(^9\)

Planning literature at the time of the countercultural movement focused on public participation.

*Arnstein’s* *Ladder of Citizen Participation* and *Schon’s* *Reflective Practitioner* are key moments

\(^6\) See: Jesse Keenan’s syllabus for class, Climate Change Resilience and Adaptation, Spring 2018.

\(^7\) Leaving aside the problem of rejecting data for a second, projection taken as fact is dangerous because it ignores error, range and probability— it ignores uncertainty. In this sense, I question if it is more valuable to consider scientific projection as a sort of fiction, somewhere along spectrum of real and representation).

\(^8\) Reciting David Hume, in Randy Olson’s book *Don’t be such a Scientist: Talking Substance in an Age of Style*

that still shape pedagogy today. Civic engagement in planning the city urged discourse “not just to talk about what is, but also what ought to be.” The binary of is and ought surfaces again in climate change. Jasanoﬀ identifies climate change as problematic because “it divorces is from ought.” Epistemic “global fact” projects a totalizing image of the world, ignoring normative “local value” and the “layered investments that societies have made in worlds as they wish them to be.”

Collaborative storytelling can rejoin is and ought. Contemporary planning literature builds off participatory methods, scenario planning, and local knowledge to advocate for “collaborative storytelling.” Goldstein calls this method “both descriptive and normative” — engaging in co-learning of science fact in order to co-produce speculative fabulations. Scenario planning is particularly suitable in climate change. The inputs are many individual voices and visions of the future. The results are a set of visions for possible futures, without prescription. Collaborative storytelling “makes sense of the world while providing guidance for change amidst turbulence and uncertainty.” Adaptation to the uncertainty of future climate requires this kind of open thinking: the medium is the message, and the process is the policy. Urban design and planning can leverage the process of civic engagement as a learning tool to shift the collective conscious of climate change — what it means to be resilient, to adapt, and to mitigate, as individuals and as cities; how did we get here, and who is accountable — in order to open opportunity for collective action.
Back to David Hume and 18th century philosophy, the rhetoric of “is and ought” has a lineage in planning, beginning in the 70’s with Donald Schon’s reflective practice. Policy framing is problematic when it separates the descriptive form the normative, and practitioners should “not just talk about what is, but what ought to be.” The concept resurfaces with Sheila Jasanoff’s account of climate homewrecking, or the divorcing of knowledge and meaning due to science. Climate change is problematic because it “tends to separate the epistemic from the normative, divorcing is from ought. It detaches global fact from local value, projecting a new, totalizing image of the world as it is without regard for the layered investments societies have made in the worlds as they wish them to be. To know climate change as science wishes it to be known, societies must let go of their familiar, comfortable modes of living with nature.”

The rhetoric continues in the promise of collaborative storytelling to bridge is and ought. A tactic that is “both descriptive and normative, making sense of the world while providing guidance for change amidst turbulence and uncertainty.” I do not wish to ride the collaborative storytelling wave or any related participatory fluff. I bring this up only to point out the position of planning in a spectrum from innovation to consumption. If science exists at one end and planning at the other, rather than fight our way forward, we should recognize that the public is right behind us. That we are uniquely pitted between an unhappy couple and we can counsel them back together.

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13 Goldstein ibid.
Collaborative storytelling may offer successful strategies, but who is sitting at the table? Understanding media, in popular culture and in journalism, is critical to addressing a broader audience. We have a disciplinary culture of turning our nose up to pop, and I do not wish to address that here. I will just say that if a community meeting is full of old people, and we are planning a future for young people, then there is a wart in the system.

Narrative theory and media hold not just replicable strategies to grip the public, but key insights into how climate has been constructed in the collective conscious. Urban planning and design can engage with the arbitrary “public” more effectively with an understanding of common mental models. Media reveals how complex ideas are packaged and delivered to be comprehensible to the consumer. And media is the ultimate feedback loop: the public controls what is being delivered to them, much like supply and demand. There is plenty of literature on the struggle of environmental journalists to commit to responsible reporting on climate change. Editors have a short threshold for complex science or doomsday talk and people respond better
to conflict or dichotomy. If people in the field cannot even make sense of resilience, and lament that no one cares, maybe we can learn something form journalists.

Social Action

“We live in one way, and we think in another. We learn to think in parallel. It’s a skill, an art of living.”15

In a book that serves as chicken soup for the rational-scientific soul, Kari Norgaard tackles the psychology of climate change. She dismantles the “information deficit model” in favor of the “social organization of denial.” (Denial, in this sense, is not of the reality of climate change but of the failure to be conscious of it). Inaction is not due to lack of information or concern. Rather, our finite pool of worry leads us to collectively, actively resist available information that makes us feel helpless. “Pain is the price of consciousness in a threatening and suffering world” and “apathy is the mask of suffering.”16 She cites social and psychological theories about how increased amounts of information are ineffective. People stop paying attention when they realize there is no solution.17


15 School teacher in Norway cited by Kari Norgaard in a discussion of her term “double reality,” the sense of normal, everyday life contrasted with the troubling knowledge of climate change and fossil fuel dependency (p. 5).

16 Norgaard, introduction and chapter 2. Denial can and should be “understood as testament to our human capacity for empathy and compassion, and an underlying sense of moral imperative to respond, even if we fail to do so” p. 61.

17 Norgaard found that in Norway, environmental concern actually declined since 1989. Cites Kellstedt et. al., 2008; Hellevik, 2002: “A decline from such a high level of anxiety is to be expected. There are limits to how long it is possible for individuals to live with extreme environmental pessimism.”
Resilience

Throughout the project I critique the ways contemporary urban design practices engage with climate change, and more specifically, coastal resilience, as a rhetorical device to reinforce the status quo. The role of urban design is passive—consumers at the end of the line that natural science conceptualizes, climate science and engineering defines, and government will implements. The limited toolkit of seawalls, berms and levees is inherited. I offer this to ask: how did we get here and what more can we do? How can we innovate — not only in physical projects and innovation, but in addressing the root that defines what the status quo is, and who resilience is for?

NASA states, “to learn about climate change, you first must know what climate is.” I trace through literature from policy, natural sciences, engineering, psychology, and physical planning to demystify the climate change—urban design lexicon. Heuristics of resilience, adaptation, mitigation, and transformation underly both research and practice. The way we define terms indicates what we do.

In a desperate attempt not to engage with resilience as a rhetorical driver for reinforcing the status quo, or someone else’s deranged view of the world — not to protect assets and opportunity under the veil of protecting lives — call it disaster capitalism, adaptation capitalism, or just ethics
I am raising a concern without plausible plans.¹⁸ There is no solution, but maybe that is ok. Maybe that is actually the point.

**Ways of Knowing**

If science knowledge is a social prescription, then other ways of knowing serve as a voice for individuals and groups outside of institutions. The goal is not to marry scientific and tribal or artistic accounts into one model of the truth. Rather, by unearthing other voices, we are reminded that the data is negotiable and that it is rooted in systems of power. Art as activism offers a seat at the table to people otherwise intimidated by the cool complexity of scientific knowledge.

*Risk society* urges an open conversation on the validity and acceptability of science fact — “we will trust the data if we understand its limits better.” The *Catalog* demystifies science and policy to reveal the value and proper use of models and projections, and to foster healthy skepticism (don’t reject data or consider it fact, but know what questions to ask in order to understand its limits in terms of uncertainty and subjectivity).

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¹⁸ On the idea that planning is consumptive and the politics of resilience: Davoudi & Porter argue that planning’s “long history of absorbing new concepts...has also given rise to uncritical acceptance of terms and concepts that are often unhinged from their philosophical or disciplinary lineages and used in slippery ways in both policy-speak and theory-invention.” In “The Politics of Resilience for Planning: A Cautionary Note,” *Interface*, 2012. p.329
Denialism

“Knowing” through the fossil fuel industry is accounted for in depth to understand how private interest politicized the science. The strategy of casting doubt and uncertainty has been powerful and pervasive. Skepticism, an important aspect of being reflexive, takes a sharp turn toward rejection rather than informed criticism. I study the history, from big tobacco to conservative think tanks, television scientists, and media campaigns to learn tricks from the devil’s handbook. What grips people and why?

Oreskes and Conway’s *Merchants of Doubt* lay out the politics of climate change denial. The strategy of projecting uncertainty on the collective conscious through media is directly adopted from that of Big Tobacco. In fact, they reveal that many of the older TV scientists claiming climate change is a hoax are the same individuals who claimed tobacco was safe years ago. I think there is something to learn from the strategy of denialism, a borrowing from the genius of the dark side. First, deniers appeal to people simply in the act of rejecting science fact as an act of rebellion. *Vice*’s coverage of the Flat Earth Society portray people who firstly don’t want to believe what they are told, and secondly contend that the Earth is flat. The intuition to be critical and think for oneself is valid and important, but misguided. I believe it can be channeled into reflexive thinking and guided skepticism if people are informed enough to know what questions to ask. Second, the trick to denialism is not in presenting alternatives to science facts — or alternative facts, which can quickly be denounced as bullshit. Rather, denier project uncertainty, and it works. Randy Olson’s *Don’t Be Such A Scientist* speaks to the field’s reputation of bad
communication. Beyond convoluted writing style, scientists expect the facts to speak for themselves. In reality, we see that they don’t.

Fiction

I began by evaluating the role of speculative design projects and the role of “cli fi” in perceptions of climate change. I link literature on the blurring of boundaries between real and representation to the subjectivity of climate modeling. James Corner’s *Agency of Mapping* argues that “mapping is a fantastic cultural project, creating and building the world as much as measuring and describing it.” Seeing and representing “how the world is” is a choice — it is subjective, and that subjectivity lives on in the project. Stephen Graham defends design science fiction in arguing that “the epistemological boundaries separating fiction from non-fiction are far more porous than often recognized.” These boundaries are breached in planning, architecture, and science fiction — the visionary tradition of design sneaks into narrative form and speculates on culture, technology, and society. But what is the role of speculative design? At best it inspires creativity and communicates criticism to other designers. But the troubling legacy of masterplanned utopias reveals the problem of translating fiction to fact, from imaginary worlds to the built environment, which will be addressed further. The point is that merging the audiences of speculative design and cli fi is powerful — the agents and actors of worlding.

Another troubling legacy can be resolved by seeking holes in the boundary between fact and fiction. Climate modeling has stirred a puzzling debate of “models v. data” (“sound science”) and contributed to the mess floodplain mapping has made in settlement patterns, home insurance, and
resilience work. Denialism projects uncertainty onto the collective conscious by pitching models as phony and data as fact. Paul Edward’s A Vast Machine traces the history of climate modeling to assert that this binary is false: “without models there are no data.” We gather and collect information, and in order to make sense of it, we compute it through models, which give us data. Subjectivity should not be overlooked: the information scientists choose to gather and choose to input into models effect the data. Skepticism should then question the limits of those models — what is certain, what is not, what are the inputs, what is the range of probability — rather than question climate modeling itself. Then, we can use data effectively. Not by equating projection with fact, but by considering it a guide to an uncertain future.

Apocalypse

The booming cli fi genre in novels and movies indicates the validity of fiction in climate change communication. It is a point of entry for people otherwise daunted and intimidated by the complexity of science and its “cool impersonality.” And it is powerful: the difference between incomprehensible statistic and a depiction of how those figures shape daily life. But dystopian trends in Cli Fi is problematic. Rendering the apocalypse can be cathartic, but it does not channel emotion into action. The “end of the world” gives you nothing to do — it pacifies fear and individual agency. It gives no access to tools.

The END OF THE WORLD narrative feeds into denialism and inaction (denial here referring to a subconscious oblivion to the changing climate, not denial that climate change is real or anthropogenic). Kari Norgaard’s Living in Denial understands denial not as greed, inhumanity, or
carelessness, but an “art of living.” Apathy is the mask of suffering and nonresponse is the “refusal or inability to experience pain.” We turn away from climate change because we are overwhelmed by helplessness — we feel too much. Apocalypse is emotionally powerful, but surpasses a level of shock and anxiety that could lead us to do something about it.

Timothy Morton’s *Hyperobjects* critiques the **END OF THE WORLD** as plea of the environmental movement. Doomsday and the urgency of “unless we act now” ignore the fact that we are already there, “getting back to Nature” fails to address what we should do (there is no untouched Nature, but a new nature that we created and are already in). The pathology of the END OF THE WORLD narrative, in science and in fiction, reveals the difficulty of optimism and the challenge of doing something about it. “What we desperately need is an appropriate level of shock and anxiety.” But what is an appropriate level? How do you address the range of “tipping points” before each person falls into denial and uncertainty? How devastating and frequent must weather events get in order to change perception and systems of response? When have we had enough?

Donna Haraway refers to SF interchangeably as science fiction, speculative fabulation, science fact, and so far. By breaking the fact-fiction boundary, she is able to think as a scholar and communicate those thoughts as a storyteller. Her tone is playful and inviting. Her kookiness does not detract from her intelligence. Rather, it engages an audience that otherwise would not pay attention to a feminist professor from the Department of the History of Consciousness talking about anthropocentrism, climate change, and what you can do about it.
Creative Destruction

“And God said to Noah, ‘I have determined to make an end to all flesh, for the Earth is filled with violence because of them; now I am going to destroy them along with this Earth.’”\(^{19}\)

The rhetoric of turning a crisis into an opportunity may be our most foundational narrative. It persists throughout time and across belief systems, cultures, and professions. From myth and biblical stories of destruction, rebirth, and salvation to the American dream. In Holling and Gunderson’s adaptive cycle, creative destruction and collapse open a window of opportunity to innovate and restructure amidst uncertainty.\(^{20}\) In the doctrines of Friedman economics, shock and awe can be leveraged to “make the impossible possible.”\(^ {21}\) A strategy he used to privatize public institutions and free markets.\(^{22}\) And it has a dark history in urban planning, when the “crisis” of slums was used to justify urban renewal.

Climate changes everything, but there is no clean-slate— not even in the wrecking of entire neighborhoods that we witness after a hurricane. Perception of risk and attachment to place, or the rhetoric of rebuild and build back better have led to resistance to change. History, experience, and community shape our mental models that then decide what information we accept or reject. Technology only compounds this as we are fed media tailored to our biases through algorithms. Climate revolves in the post-truth era, where zombie myths and emotional

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\(^{19}\) Genesis 6:11


baggage float around and appeal to our deepest fear and anxiety. Radical, unprecedented, and out of control. The I-told-you-so-moment will not come in our lifetime and the facts don’t matter to non-experts, but perception will guide our action.

We must be cautious of the rhetoric of urgency to validate policies and projects that tell you what is and never ask you what ought. Progresses in participation aside, if the four “options” presented to the community are four variations of the same seawall, there is a wart in the system. Our mental models are conditioned by media and experience and root back to myth and the Bible. Our worlding of the future cannot then start with a crisis, address issues at the margin, and never at the root. Bill McKibben proposed “Hurricane Exxon” as a better term than Katrina or Sandy. I wonder how many people understand what he means. Even if they do understand, again, concern undermines action unless accompanied by plausible plans. We will pick a seawall without thought.

Myth

Myth, Merriam Webster:

1 a: a usually traditional story of ostensibly historical events that serves to unfold part of the world view of a people or explain a practice, belief, or natural phenomenon creation myths
   b: parable, allegory
      "Moral responsibility is the motif of Plato's myths."

2 a: a popular belief or tradition that has grown up around something or someone; especially: one embodying the ideals and institutions of a society or segment of society
   "Seduced by the American myth of individualism." —Orde Coombs
   "The utopian myth of a perfect society."
   b: an unfounded or false notion
      "The myth of racial superiority."

A person or thing having only an imaginary or unverifiable existence
"The Superman myth. The unicorn is a myth."

The whole body of myths
A student of Greek myth.

I use the following three definitions of myth, based off the dictionary and (my brief encounter with) the theories of anthropologist Claude Lévi-Strauss and philosopher Roland Barthes.

1. Phenomena: a narrative response to our failure to make sense of things we observe; a way of knowing that combines observation and imagination.

2. Tool: a cultural strategy for maintaining society and social order; a way of telling; Marx/Freudian perspective of imprisoning stereotypes and archetypes.

3. Falsehood: an unfounded or false notion (a rabbi and an atheist will both say "creation myth").

In reading theory, I was struck by the similarities between myth and narrative. Narrative provides a way of knowing and telling. It can be descriptive or prescriptive, about the future or about the past. "How we story the world determines how we know it and how we behave in it." Narrative is open-ended and conversational. It involves the process of "knowledge work," or relating experience through storytelling. Or it can be propaganda and persuasion (the intentional use of language to influence opinion and behavior) observable in politics, media, and the market.

Whether the intention is to know or to tell, narrative is always personal and emotional. It grips

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our foundational beliefs. And narratives are not really about transmitting facts—but the interpretation and emotion of them. Narratives are about experience.\textsuperscript{27}

I think about parafiction\textsuperscript{28}, science fiction, or speculative design. When a space is provided that does not recognize clear boundaries between fact and fiction, what happens? It grants entry, communicates through personal relation, and allows for imagination. The space transcends questions of validity to access a negotiation of many values, identities, and interpretations. And when the boundary is erected, what happens? People devote their lives to building a detailed replica of Noah's Ark, or discredit the role of fiction while probably appealing to sneakier forms of it themselves.

In 2016 “post-truth” was the Oxford Dictionary word of the year:

\begin{quote}
Relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.

“In this era of post-truth politics, it's easy to cherry-pick data and come to whatever conclusion you desire.”
\end{quote}

I propose another open-ended question on whether post-truth is really just rebranding myth. The truthiness is not the point. Which begs a series of more open-ended questions: is the booming

\textsuperscript{27} Paschen & Ison. “Narrative theory does not view narratives as stories that transmit facts or truths about the world. It focuses instead on how people interpret the world from their specific social, historical, and cultural locations, and the diversity of voices and worldview represented.”

genre of cli-fi\(^{29}\) in both books and movies a modern religion? Or a spiritual yearning and reaction to the lack of emotion in objectivity? So many of these stories are rooted in biblical myth, they become a part of our identity, like *Star Wars, Game of Thrones*, and so on, yet we don’t call them a religion.

**The Age of Reason**

"Whether myth has a future depends on its capacity to meet the challenge posed by modern science."\(^{30}\)

The Age of Reason came just before oil and the start of a new phenomena called Climate Change. The stories we told ourselves in order to make sense of the world were abandoned and replaced by science. Yet science and technology birthed a wholly new world we are now caught trying to make sense of. And when we try to make sense of it with science — no one seems to get it.\(^{31}\) "The science isn’t going to get us anywhere without the story," as my thesis advisor put it. Or, as historian R.G. Collingwood explains, facts make no sense without the story, and the historian as storyteller must use the “constructive imagination” to put the pieces together.\(^{32}\)

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\(^{29}\) Climate Science Fiction. Term coined by Dan Bloom: "Cli-fi came to me a er I read the IPCC report and was thinking of ways to raise awareness of novels and movies about climate change issues. Novelists today don’t care much about such intellectual distinctions. Using words to tell a good story is all that matters. Genre is only important for organizing library shelves. Truly. Story is everything." [https://chireviewofbooks.com/2017/02/08/the-man-who-coined-cli-fi-has-some-reading-suggestions-for-you/](https://chireviewofbooks.com/2017/02/08/the-man-who-coined-cli-fi-has-some-reading-suggestions-for-you/)


\(^{31}\) See Randy Olson, *Don’t Be Such a Scientist*; he cites a study from Science magazine in which an MIT professor gave graduate students the first summary paragraph of an IPCC report and the comprehension scores were under 20%.

After the birth of Reason, the word *myth* adopted a new meaning: a falsehood, the “falsification of reality or fictionalization of truth.” ³³ To me this is extremely unfortunate. The point of myth was never to divorce true from false. Rather, its purpose is to conflate the things we observe with our imagination. It is a way of explaining phenomena and a strategy to affix emotion to them. ³⁴ I wonder if myth became derogatory as people appealed less and less to Judeo-Christian religions in America. A believer and non-believer may both still use the terms “creation myth” or “flood myth,” without letting their position be known. This way, the stories may still serve a purpose as allegories.

Beginning the timeline of climate change with the Age of Reason ignores not only ancient myth (religious, classical) but also its importance to humanity. The stories we tell ourselves for earthly survival, as Donna Haraway often says, rely on fiction. ³⁵ Over the past three centuries Western society has been busy debunking myth and separating fact from fiction in order to construct an objective worldview. We are conditioned to think that only fact matters — that truth is all we need for survival; that to be enlightened is to be rational rather than spiritual. This is problematic because it validates scientific forms of knowledge production and discredits the role of narrative. It throws away traditional methods of knowing, seeing, and communicating. It ignores the connection between emotion and cognition. ³⁶

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³⁴ Claude Levi-Strauss and Roland Barthes as accounted in Meissner.


³⁶ Norgaard, Kari. *Living in Denial: Climate Change, Emotions, and Everyday Life*. MIT Press, 2011, p.7. Explains that emotion and reason are not mutually exclusive. Rather, emotional learning is reasonable. Emotion can “tell us about a way of seeing” and is “unique among the sense because it is related to cognition.”
Rational, Cartesian worldviews may have worked for a while, but again, *this changes everything.* The thing (Earth) we are objectively measuring is deeply subjective—climate change is personal and emotional, and cannot be addressed with the “cool impersonality” of science. It means something different for everyone. Both in its perception and its unequal distribution of circumstances to all living things. Personal health may be a good metaphor: when my doctor tells me my heart rate, the number means nothing to me. But when she tells me I am relatively healthy, I attach an emotion to it. Every yearly check up, I fail to recall the number and hold onto the doctor’s ability to make sense of it by explaining what it means for me and my future.

**Science Communication Today**

“That’s all great, but that’s not a story. That’s only information. A story begins when something happens.”

Somehow the very people who advocate against systems of power fall into the trap of objective worldviews. Clear evidence of the failure of fact in climate change communication comes from activism on the ground and in literature. The term “zombie myths” refers to junk science stories that reappear even after they have been successfully refuted. This term’s original context is climate change. As a Greenpeace organizer said in the film, *Merchants of Doubt:* “There is this

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37 Often said in Morton, Timothy. *Hyperobjects.*

38 George Monbiot credited with coining the term, [https://www.desmog.ca/2013/07/18/george-monbiot-climate-zombie-myths](https://www.desmog.ca/2013/07/18/george-monbiot-climate-zombie-myths). Dana Nuccitelli, “Global Warming Conspiracy Theorist Zombies Devour Telegraph and Fox News Brains,” *The Guardian,* June 25, 2014. “Global warming myths can never be permanently killed. Once debunked, a climate myth will go into a state of hibernation, waiting for enough time to pass that people forget the last time a scientific stake was thrust through its heart. The myth will eventually rise from the grave once again, seeking out victims with tasty, underutilized brains to devour—every zombie’s favorite meal.”
hope that, as the science continues to emerge, the public will become aware, and our political leaders will solve this problem. But that’s not what happened.”39 The public is unable to grasp, reflect on, and believe fact and data. At the same time, the phenomenon of climate is used as a mechanism (a different type of myth, see #3 below) by institutions we consider rational and emotionless.40 They recognize the very power of emotion. Deniers use climate as a weapon in a battle with science to win over the public. They feed into the healthy impulse to be skeptical. But rather than critical thinking about how to reconcile information that contradicts our identity (cognitive dissonance; our culture of energy threatens our existence), deniers offer an easy out: they explicitly/implicitly claim that activists and scientists are trying to threaten our culture of energy in order to dismantle capitalism and the American way of life.41

Unpacking “climate change is a myth:”

1 It relegates climate change to a falsehood.
2 It goes beyond saying “climate change is not true.” Claiming myth is to observe it as a construction; as a mean to some end.42

3 Using the word myth creates a new myth — also with means to an end: the use of narrative as a tool for social order through emotion.


40 Thinking about when the head of the Heartland Institute says “Climate is just a mechanism” for political control over economic means of production. Merchants of Doubt.

41 A modern myth? Arguments that American progress and capitalism are “official stories” and dangerous ideologies: Naomi Klein, The Shock Doctrine: That the triumph of capitalism is born of freedom is America’s central and most cherished claim. A danger to the public, rooted in biblical fantasies of great floods and great fires (i.e. disasters, shock)— followed by a clean slate.

42 (Tangent) Top entry for “climate change” on urbandictionary.com: “If you aren’t sure whose motives are suspect, think of the old Roman proverb ”look to see who benefits”. Environmentalists don’t have some secret hidden agenda, they sincerely just want to live on a habitable planet. They don’t makemoney from saving forests. Who makes money, the corporations, or the environmentalists? Think about it, as a person who probably acts in their own rational self interest, who is more likely to lie and cheat, the party who stands to make or lose money? Or the poor buffoon who just wants to save some owls, and maybe breathe clean air? Does anyone really honestly think their car exhaust disappears?”
Making Lists because we don't want to Die

This infinity of lists is no coincidence:
a culture prefers enclosed, stable forms when it is sure of its own identity,
while when faced with a jumbled series of ill-defined phenomena,
it starts making lists.43

A very clear image of the universe existed in the
Middle Ages, and there were lists. A new worldview based on astronomy
predominated in the Renaissance and the Baroque era. And there were lists. And the
list is certainly prevalent in the postmodern age. It has an irresistible magic.

...We like lists because we don't want to die.44

When I began my research on climate change, I found myself constantly circling dates and
scribbling timelines of events. I went down spirals of Internet holes, uncovering histories, and
always working backward. I needed to unravel accounts into a linear form in order to understand
them. I needed to see the chart line of sea level rise in sync with every storm and flood. I reacted
to a phenomenon I could not grasp by exhausting knowable observations. But the observations
alone are useless. As much as I painfully avoided narrating this timeline (by including everything
and avoiding visual hierarchy), no one could engage with it. I was constantly advised to be a
guide and tell a story.

Mythology is the creation of narratives to reconcile worldly conflicts. It is the study of ideas-in-
form.45 Levi-Strauss said that the meaning of mythology is not in the isolated elements that

44 Interview with Umberto Eco by Susanne Beyer in Spiegel.
45 Barthes, Mythologies, 1957.
compose a myth, but in the way those elements interact or clash.\textsuperscript{46} I realize now that listing observable data is only half of defining a phenomenon. It sets up the encounter of elements. The other half is the story that ties those elements together. As much as I want you to frame your own narrative, either you won’t, or you are already within mine. To reconcile this, the use of narrative is then more in knowing than telling. It invites you to insert yourself into open-ended conversation. It is less about my authorship (a conversation that falls into the trap of validity and convention, objectivity and subjectivity) and more about imagination. I am the the author, but I don’t have the answers.

I adopted the \textit{Whole Earth Catalog} and turned my thesis not into a definitive argument but an archive, or documentation of literature, science, art, and media about climate change. Felicity Scott wrote that the \textit{Catalog} convened the mess of counterculture in the 60’s and 70’s into one frame. It revealed consistencies within an ill-defined and diffuse movement. And in retrospect, it propelled the movement further by providing tools for action and inspiration. It turned Blue Marble into a fantasy of space exploration through depicting futurists like R. Buckminster Fuller and Gerard O’Neill as godfathers of free-thinking.\textsuperscript{47} Activism was critical but hopeful, rooted in a belief in the power of imagination and worlding. The movement didn’t talk about colonizing Mars because the Earth was no longer habitable. It talked about colonizing Mars to indulge in our capacity and expand the realm of possibility.


Fuller and O’Neill were as much invested in science as they were in science fiction. Speculation allowed them to be outlaws: to transcend beyond the barriers to possibility, both real and perceived, in order to form grounded actions that make the impossible possible. The outlaw area is a space for imagination, and fiction broadened their command of influence. Both university professors, Fuller and O’Neill appeared in popular culture and science fiction magazines, major newspapers, and dabbled with NASA and Congress.

Myth-odology

I began with an interest in the ways religious and classical myth get recycled in visual representation today. I abandoned this because it seemed obvious. Rather than accounting for the myths we already know, I want to call out the modern myths that are all around us — that we know, whether we are identifying them as myth or not. Climate change is a myth. Indeed. It is a myth in the sense of phenomena: real and unknowable, everywhere and nowhere, yesterday, tomorrow, and forever. It is a myth in the sense of a tool: “climate is just a mechanism.” It calls to mind Milton Friedman’s strategy of using moments of crisis to “make the impossible possible.” Climate, and specifically dramatic weather patterns, appeal to our deepest fear and anxiety. Radical, unprecedented, and out of control. And climate change is a myth in the sense of falsehood: it revolves in the post-truth era, where zombie myths float around, carrying emotional

49 Referenced in Sott. See also: Whole Earth Catalog and Space Colonies, 1972 (an edition of the Coevolution Quarterly).
baggage or appealing to sensationalist media. The I-told-you-so-moment will not come in our lifetime. The facts don’t matter to non-experts, but perception will guide our action.

There seems to be a trend in planning literature today about the use of collaborative storytelling in public participation practices, especially in the context of climate change resilience and adaptation.\textsuperscript{51} The tactics feel fluffy. Perhaps victim to conventional methods of research-critique-suggestion in academia (\textit{we want three case studies, five concrete conclusions and an operative framework!}). I want to abandon technocratic methods of engaging with narrative theory in urban planning to suggest a flip in perspective: rather than observe and \textit{adopt}, observe and \textit{adapt}.

Myth-odology is a process without products, or at least without knowable outcomes. It does not just engage with the public, but starts with the public. If we abandon starting a resilience project with a toolkit of infrastructure, or a model of scenario planning tactics, and we simply \textit{don’t know}, perhaps we can consider people as a resource (and not a nuisance).\textsuperscript{52}

Narratives and media hold not just influential strategies to replicate, but key insights into how climate has been constructed in the collective conscious. Urban planning and design can engage with the often-arbitrary “public” more effectively with an understanding of the common mental models. Media is not just about representation. It reveals how complex ideas are packaged and delivered to grip the consumer. And media is the ultimate feedback loop: the public controls what is being delivered to them, much like supply and demand. There is plenty of literature on the struggle of environmental journalists to commit to responsible reporting on climate change.


\textsuperscript{52} A phrase I can’t remember exactly, along the lines of “love the public, hate people”
Editors have a short threshold for complex science or doomsday talk and people respond better to conflict or dichotomy.⁵³ I am not arguing for a media-based approach to climate communication or resilience and adaptation planning. Such a strategy would contradict my central point — that there are no silver bullet solutions or even conclusions to addressing the unprecedented. I simply wish to point out that beyond cross-disciplinary thinking, climate change requires a complete reshuffling of our tools, modes of knowledge production, and conventions on legitimacy.

Collaborative storytelling may offer successful strategies, but who is sitting at the table? The joke of the professional planning meeting attendee, an older white woman campaigning for more dog parks, reveals a real problem. Technocratic box-checking of community engagement toots pictures of kids doodling with crayons. We look at the drawings and smile, and we learn nothing from it. Our posters may be succeeding in graphic communication, but what about the fact that the four “options” presented to the community are really just four variations of the same seawall?⁵⁴

**Manhattan**

Design fiction has been fixated on the city. From Viele’s double-decker streets, *New York World’s* illustrations of the future city, Hugh Ferriss’ dramatic renderings of megastructures, and Hood’s

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⁵³ Gibson, Boykoff

city bridges creating life above the water, to Wright’s Ellis Island, Le Corbusier’s Radiant City, Fuller’s dome over midtown, Superstudio’s *Continuous Monument* and Rudolph’s LOMEX. Architects and illustrators manifest visions of the future through Manhattan. As designers, these projects world worlds with drawings. As citizens, the projects reflect on technology and society and express hope and fear through utopia or dystopia.

Science and popular fiction has done the same thing for the masses. Max Page states that “Americans have been imagining New York’s destruction for two centuries.” Gernsback’s *Amazing Stories*, *Godzilla*, *Superman*, *Batman*, *Final Fantasy*, and the *Day after Tomorrow*, to name a few. Writers, illustrators, and filmmakers channel fantasy and fear through the wrecking of American progress’ most physical form.

New York City is positioned in the tension between designer and citizen. Events like the World’s Fair popularized the concept of utopia, Robert Moses and Jane Jacobs’ legacies raised issues of citizen’s rights, power of authority, and participation. 9/11 highlighted the importance of design and community engagement in rebuilding the image of the city, and Hurricane Sandy elevated the civic responsibility of urban design in “building it back better.” The current federal, philanthropic, design, and artistic investments in worlding the future of Manhattan raise question of the role of the public in deciding what the future of the city should be. The history of imaging New York offer a wealth of inspiration for deciding what it should look like. The Yale Program on Climate Communication identifies New Yorkers as highly representative of “73% Open.” In response to the question “Do you believe global warming is happening?” 83% of New Yorkers
responded yes, 75% said they were worried about it, and half said they thought it could harm them personally.\textsuperscript{55}

\textsuperscript{55} Yale Program on Climate Communication. "Climate Change in the American Mind," October, 2017.
Media Thesis: Impact

I spent an entire semester revising a thesis topic, and another few months in the dark not knowing what the deliverable of all of my ideas would be. I decided on a book after discovering the Whole Earth Catalog. It is not a typical book: it was a medium for a movement, as a catalog it had a clear leader but no clear author, and it is not linear. You can pick it up and open it to any page, and each page sends you off to dozens of other texts, thought provocations, and references. I bought the domain www.futureearthcatalog.com, because, why not. But most of the project was very much conceived as a physical document. Close to the finish line, I decided to put it on the internet. Each of the six sections in the volume is uploaded via the site issuu which gives performance statistics on the work. I sent the link out to the MCP 1 & 2's, and a handful of professors.

![Publication Performance Chart]

**Top three publications**

- Future Earth C...
  - N/A 34%
- Future Earth C...
  - N/A 11%
- Future Earth C...
  - N/A 15%
In the beginning I was shocked at the results: 60 reads on the first day. I quickly started making adjustments, realizing things about print were not translating to the web. For example, people spent an average of 10 minutes on the Introduction, whereas I wanted this section to be quickly skimmed. I did not want people’s experience of the project to be mostly in text. I added this page to the beginning of the document to guide the web reader through:

**WHERE TO BEGIN...**

You don’t need to read the sections in order.
Use the table of contents to choose your own adventure.

**A QUICK NOTE FROM THE "AUTHOR"**

Hi, I’m Max Moinian. I am constantly, obsessively, updating these books. This is a work in progress so let me know what you think.

Also, you may not be clear on who said what, but that’s not really the point. The point is what becomes yours. Ask yourself: what sticks?

**UNLESS OTHERWISE NOTED...**

Everything in this book is taken from the Internet without permission.

**WHAT DO YOU FEEL LIKE LOOKING AT TODAY...**

1. Introduction
   - Some diagrams and a formal research paper.
2. Frame your own Narrative
   - Also of pictures.
3. Exhibition
   - Also of pictures, with humor.
4. Urban Dictionary
   - Some pictures, some text, some humor.
5. Climate Change & the Urban Age
   - Diagrams, some doodles.
   - Also of pictures. How fun.

**HOTLINE... 917.371.7980**

Call me if you want to talk about climate change.
I’m serious, I’m also friendly.

I saw that people were mostly reading on their phones - a very different format than the large printed book that I had in mind. One thing I noticed watching the footage of the defense is that people were taking pictures of certain pages. I wish I could get this sort of feedback from the online version - it is exactly what I mean by the question *what sticks?*
Once I adjusted the sections to guide the reader, average time on the Introduction decreased to 5 minutes. Now, the most time has been spent on (2) Frame your own Narrative, (3) Exhibition, and (4) Urban Dictionary. I see that numbering the sections is also misleading to the nonlinearity of the volume and will address that as well. Moving forward, I am still undecided on the best medium for the project. I need to commit to print or web and adapt the work accordingly.

Web would allow me to continue a feedback loop process I have been using all semester to experiment with my methods. I have constantly been sharing pieces of the project with different audiences in my own network, through a variety of forms. I consulted friends who work in branding and digital marketing on my titles and graphics. As well as artists and designers who work with musicians and popular culture more broadly. These are some of the people who told me they don’t talk about climate change because it “feels like jazz” — a club they are not a part of, and something they don’t know enough about to take a seat at the table. With them, I was mainly concerned about graphics. I wanted the visuals to be “cool” enough to grab their attention, and under-polished so that it feels accessible. The difference between a complete document and a work in progress is that people feel more inclined to give their two cents, and they are working through the ideas with you, as part of the process.

I periodically used social media as well. On Instagram, I would share video “stories” users can click through. This allowed me to see how many people opened my story, and how long they clicked through before moving on to the next person’s story. I found that people stayed with me if they felt my presence. When I shared a piece of primary text, if in the next frame I annotated the text with underlines, or gave my “for dummies” interpretation through phrases and emojis,
people were more engaged. If beyond just watching the story anyone actually reached out to give feedback, I would ask what was the most interesting, were they reading the text if I didn’t annotate it, was anything too dense and glossed over — I was asking what sticks?

Of course, the most obvious feedback on keeping people engaged was comic relief. I play with this in the book as well as in social media communication. Memes or politically cartoons are randomly inserted throughout. It is important to laugh and entertain, but it is also important to insert some humanness into the heaviness that is climate change.

Throughout the year, I struggled in finding my deliverable. I struggled to commit to a site in physical space, and reasoned that I had to in order to make this an urban project. I can argue now that there are many ways this project is inherently urban: it speaks to a broad audience but embedded in that is a direct critique of the disciplines or urban planning and design, people in cities are statistically more open to social action in climate change, cities are the site of decision-making, wealth, innovation, concentrated discrepancies in equity, and historically cities are the site of social action. Furthermore, the fixation on Manhattan’s future or destruction is not just because New York is the center of the world, but because it is America’s vision and shared home. It is a physical manifestation of foundational American narratives and the rhetoric of progress, and it’s visual history is as rich as it’s actual one. Depicting a nuclear bomb on Manhattan or memorializing the twin towers with a monolithic symbol of American progress pulls at the heart strings of people across the country.

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56 Shorto, Russell. Island at the Center of the World: The Epic Story of Dutch Manhattan and the Forgotten Colony That Shaped America.
But beyond these reasons, I see in retrospect that this project is inherently urban in that it is an experiment in using the methods and skills of a training in urban planning and design in a completely different way. It is extremely personal. I am using the tools I have accumulated through graduate school, in graphic representation, storytelling, communication, critical thinking, and analytical reasoning to try to do my part as an individual. It is half a thesis and half me being sick of doing nothing about an issue that I shy away from because I feel helpless - exactly the kind of person Kari Norgaard brilliantly makes sense of in *Living in Denial*. In addressing the impacts of this project on the field of urban planning, I simply wish to point out that beyond cross-disciplinary thinking, climate change requires a complete reshuffling of our tools, modes of knowledge production, and conventions on legitimacy.

I wish to provoke conversations on the ethics of resilience and adaptation practices, as well as inspire new ways of thinking about being a planner. We are a discipline of problem-solvers, but there is no solution to the uncertainty of climate change. No designed and spec’d project to be implemented in physical space, and no silver bullet solution. In accepting uncertainty, and reevaluating our position between the public and the systems of knowledge production and decision-making, we can approach climate change and all its subcategories as a never-ending process. And in reshuffling out tools, we can embrace fields we have a history of neglecting, and cycle back traditions that deserve to be central to our practice.

Understanding media, in popular culture and in journalism, is critical to addressing a broader audience. We have a disciplinary culture of turning our nose up to pop, and I do not wish to address that here. I will just say that if the community meeting is full of old people, and the
future we are planning is for young people, then there is a wart in the system. I am hopeful about
the massive reshuffling I am suggesting. It may resurface traditions that deserve to cycle back
into practice, like speculative design or design science fiction. Bold, visionary planning receded
after the Greats of modernism saw their fictions turn into blueprints. Le Corbusier’s Cité Radieuse
is disturbingly identical to postwar public housing projects in America (stripped of all the
important details that made his realized projects work, like Unite d’Habitacion).

Going back to Fuller and O’Neill, it is time for urban planning and design to recognize that we
already have powerful narratives in our toolkit. We can be as far-reaching, playful, and
ungrounded as the legends of counterculture. The observed break in the discipline between social
and physical planning is actually ok. It is an opportunity to be flexible with our agency and
release bold planning from a top-down, authoritative position. It is a license to world and come
back to the ground as needed. To reassemble the elements and shape the spaces between them—
not on a clean-slate, but on a messy one. Climate changes everything, but we lost something
critical when we wiped traditions of myth for the excitement and terror of science and the future.
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This infinity of lists is

no coincidence:

A culture prefers
enclosed,
Stable forms

when it is sure of its own
IDENTITY,

while...

when faced with a jumbled
Series of ill-defined

PHENOMENA
it starts making lists.

The Infinity of Lists. Umberto Eco. 2009
FUNCTION

The WHOLE EARTH CATALOG functions as an evaluation and access device. With it, the user should know better what is worth getting and where and how to do the getting.

An item is listed in the CATALOG if it is deemed:
1) Useful as a tool,
2) Relevant to independent education,
3) High quality or low cost,
4) Easily available by mail.

CATALOG listings are continually revised according to the experience and suggestions of CATALOG users and staff.

PURPOSE

We are as gods and might as well get good at it. So far remotely done power and glory—via government, big business, formal education, church—has succeeded to point where gross defects obscure actual gains. In response to this dilemma and to these gains a realm of intimate, personal power is developing—power of the individual to conduct his own education, find his own inspiration, shape his own environment, and share his adventure with whoever is interested. Tools that aid this process are sought and promoted by the WHOLE EARTH CATALOG.
The Future Earth Catalog functions as an evaluation and access device. Stories are tools to help one become:

1. a reflexive citizen
2. an agent
3. a worlder of worlds

To reflect on our agency as world builders.

As a collection of things, the Catalog is never complete. Please share your opinions, knowledge, and tools.

The future can only be whole if you take part in it.

With it, one should frame a narrative of climate and risk for your own.

"This changes everything."

Never before has the power of the individual touched the future so clearly. No one gets to play hooky on a new Earth.

Reboot your lifestyle, repurpose your skills, and take a seat at the table.
WHERE TO BEGIN...

You don't need to read the sections in order.

Use the table of contents to choose your own adventure.

A QUICK NOTE FROM THE “AUTHOR”

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Also, you may not be clear on who said what, but that’s not really the point. The point is what becomes yours. Ask yourself, what sticks?

UNLESS OTHERWISE NOTED...

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### WHAT DO YOU FEEL LIKE LOOKING AT TODAY...

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### HOTLINE ... 917 371 7380

Call me if you want to talk about climate change.
I'm serious, I'm also friendly.
Thesis in fulfillment of
Master in City Planning,
DUSP, MIT

What am I even doing?

Media, Politics, Science
constructing
Climate & Risk

How are climate and risk constructed in public perception?
A timeline of events that reveal how media, policy, and science construct the dominant narratives of climate and risk.

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Charting isolated moments, overlapped moments, and linked threads through time to reveal the dynamics between media, policy, and science.

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Of the other ways climate is mediated: through art, performance, and experience. And of the ways urban planners and design address it.

Access Tools
For emotional learning, science communication, risk perception, and social action.
Lexicon of Climate Change Literature

Concepts, terms, and buzzwords to know.

Scrapbook of Unlikely Friends

Diagramming where we are, how we got here, and what climate change and cities can offer each other (through urban design).

Storytelling Speculative Scenarios

Prompts, games, and activities for professionals and for people to world one's own future New York.
INTRODUCTION

FUTURE EARTH CATALOG

BRAIN DAMAGE IS WHAT WE HAD IN MIND ALL ALONG

CHROMOSOME DAMAGE IS JUST GRAVY

January 2016  $1.65
Thesis

The MCP thesis is an independent piece of analytic work, organized around a set of research questions. A broad range of studies can qualify as a thesis. Some are academic research projects; others are closer to being professional reports (for a client) on planning practice and policy questions. Still others may be design proposals or documented formal models. The thesis must have an analytical dimension that addresses issues of implementation, design, public policy or planning practice.

What Purpose does the Thesis Serve?

The thesis requirement offers the opportunity to:

1. Synthesize your previous learning and experiences and reflect on their meaning;
2. Strengthen and demonstrate your competence in framing questions, designing a process for answering questions and interpreting the meaning of findings;
3. Deepen your knowledge of a specialized topic;
4. Design and complete a significant independent project which has significance for planning or policy; and
5. Produce a document you may wish to show to prospective employers or clients (though this is not a DUSP requirement).

Several Points Apply to all DUSP Theses

1. All theses must be appropriately rigorous, which means that questions and hypotheses are explicitly formulated and tested against data; and that conclusions are drawn and their implications assessed;
2. The analysis presented in the thesis must be systematic;
3. The form that the thesis takes should clearly relate to its intended audience. If the thesis consists of a design proposal, film project, or a project in another medium, written documentation must accompany the film, plans, etc.;
4. The length of the thesis is not important, though it should be no longer than is required to achieve its goals; and
5. If the thesis is drawn from a group project, each individual must carry out and submit a self-contained topic and product for their thesis.

Non-Traditional Thesis Options

The program recognizes both the "traditional" thesis approach (independent work on a topic defined and developed by the student in concert with a thesis advisor) and a "structured" approach (work on a topic emerging out of the student's participation in on-going research directed by a faculty member, who will also serve as the thesis advisor). Beyond this, the program recognizes the following alternative thesis options, each described in more detail below:

1. Client-Linked Thesis
2. Design Thesis
3. Media Thesis
Design Thesis

approved by MCP committee 3/13.

A Design Thesis can be of two forms: Design or Design Research.

Design:
The student's thesis is a design project that would be fully articulated in a series of design drawings, and discussed in an accompanying brief written component (under 3000 words). Theoretically the breakdown of content would be 75% design and representation, 25% written.

Design Research:
The student's thesis is a set of analytical drawings based on research of a physical design issue accompanied by equal written component. Theoretically the breakdown of content would be 50% analytic drawings and representation, 50% written.

In both thesis forms, drawings and representations of physical, multiscalar spatial issues are the center of the student's thesis and written text is to be used in a supporting role to the original visual presentation materials.

Because the Design Thesis centers on visual representation rather than writing, students who choose this path would not be relying as heavily on social science models of research that currently are taught in DUSP. Rather, they would require instruction in the research methods more closely aligned with those of design disciplines, such as analytical drawing and mapping techniques and how to formulate arguments for a design intervention.

Media Thesis

approved by MCP committee 3/13.

Various forms of media—including photography, digital visualization, lighting, film, computer and mobile phone applications—are ubiquitous in urban planning research and practice. The Media Thesis allows students to investigate (research) and implement (design) various forms of media to develop and answer research questions focused on urban planning, development, and policy, including spatio-temporal and place-based interventions. The Media Thesis differs from the traditional MCP thesis in that students who choose a media thesis will implement/design their research ideas through a medium they choose. While a traditional MCP thesis might analyze how multi-media could be used for planning practices, students who choose a media thesis will be innovating in the medium itself using it as a method to address an issue linked to urban planning. Students interested in the Media Thesis must have a research question that explains the importance of using their chosen medium to answer a planning question.

In addition to the media product, the Media Thesis will have written component that describes the media method developed. The write-up should include:

- A theoretical framework for contextualizing the planning issue being addressed. In other words, why is the topic important for a planner to investigate?
- An explanation for why the chosen media approach will further expand knowledge or be innovative.
- A description of the media approach and its outcomes. The description of the media approach should include images, diagrams, system architecture and development sketches (where relevant), and other materials that explain the media (or multi-media) approach.
- An analysis of results and potential impacts on the field of urban planning.

Screen Shot 2018-04-30 at 10.08.00 PM

Excerpt from the student handbook. MIT Department of Urban Studies & Planning. School of Architecture & Planning.
Thesis
in fullfilment of
Master in City Planning,
DUSP, MIT
**FUNCTION**

The introduction to the *FUTURE EARTH CATALOG* functions as an academic research project that builds skills in posing a topic and question, designing a method, and framing an argument.

**PURPOSE**

With a thesis, a student should design and complete a significant independent project which has significance for planning or policy.
I would like to thank a lot of people ....

Mom & Dad

My advisors: Alan Berger & Rafi Segal

My reader: Jonah Susskind

My sisters: Mo, Mic, Steph, Em, So, Yas

My friends: Kelly Main, Dani de la Fe, Haley Albert, Mario Giampieri, Malcolm Rio, Alina Nazmeeva, Giovanni Bellotti, Alexander Wiegering, Louis Liss, Collyn Chan

People who don’t even know how important they were to this project: Liz Koslov, Rosetta Elkin, Marie Law Adams, Brent Ryan
Recapitulating the semester: 11.1

Sept 12: Phenomena
Sept 19: Theory
Sept 26: Literature
Oct 3: Ethics
Oct 12: Case Study
Oct 17, 24, 31, Nov 7: Methods seq
Nov 14: Research Question

MAX MOINIAN
SEPT 23, 2017
THESIS PROPOSAL, DRAFT ONE

Resilience is not a Seawall

I. Precedent Analysis / Literature Review
   Factors: design, policy, process
   Examples: case studies from other articles and proposals
   Concepts: use maps and diagrams to represent the landscape as infrastructure.
   What does the "LINE"...?

II. New York
   Contextual Analysis Maps
   New York SLR storm surge compare and contrast
   Project Maps: identify site / identify process / Analysis of

III. New York, 2100
   Design
   1. Policy
   2. Process

Policy / Disaster / Design Timeline

PHASE TWO

Short-term safety and resilience measures taken. Radical changes to zoning prepares the edge to slowly welcome water. New development complements with and pays for the beginning of a new street level above grade.

PHASE ONE

Generate public support through public interest, learn how people use the space to inform design, create value, capture value to pay for phase two.

What is the agency of urban design in shaping the collective conscious and inspiring social action in climate change?

Max Moiznia 180524
Is it possible to adapt existing infrastructure under changing environmental narratives?

**METHOD**

**ACCESS**

**TRANSPORTATION**

---

**Reflexive Urban Design: Environment, Risk and Advocacy**

---


The evolution of a thesis proposal.
This is an object.

Absolutely...

the science isn't going to get us anywhere without the story.

You are setting the room up, and you don’t realize it yet but you are not going to enter through the front door...
I don't know what you want me to say Max, you're not going to listen to me anyway.

You know I see a lot of myself in you...

This is a metaproject.
lol for a second
Alan thought
I did a conventional project

Thesis Defense

May 8, 2018, 2 PM. Leventhal Center for Advanced Urbanism, MIT MediaLab
Rendering Walls

Client: "Make them look invisible"

Power of an image

A good narrative is emotional.
Data and convention make it legitimate.
Communication? Propaganda?

Agency of urban design

How can I work within the system but change the outcome?

Process of the practice

Timelines of policy and process are out of sync and very influenced by a sense of urgency.

I have an opportunity to invest time in finding an angle.

Telling Stories

I am capable of telling a story through an image.

Play the game, break one rule

If I work for the Client, I must listen to the Client.

Research

I have an opportunity to invest time in finding an angle.

Thesis Idea #1
What is the image of "resilience"?

Power of an image

AGENCY of urban design

What am I even doing?

Skills for what?

Resilience for what?

Process of the practice

Which rule should I break?

"What kind of conversation do you want to have?"

Slides from Thesis Defense

May 8, 2018, 2 PM. Leventhal Center for Advanced Urbanism, MIT MediaLab
Thesis Idea #2

Revisionist History
New Media
Who Am I Talking To

Coastal Resilience
Climate Change Perception

Science → Technology → Government → Planner/Designer → Public
Climate Change  URBAN DESIGN

Climate Science · Sea Level Rise · COASTAL RESILIENCE · Policy
Adaptation · Mitigation · Transformation · PHYSICAL/ENVIRONMENTAL PLANNING
Risk Perception · Ways of Knowing · Narrative Framing · COLLABORATIVE STORYTELLING · SCENARIO PLANNING

Diagram:
- Worlds
- Extinction
- Design Science Fiction
- IS + Ought
- Risk Society
- News
- Art
- Movies
- Counterculture
- Popular Culture
- Energy
- Culture
- Space
- Race

Masters Thesis

Playbook

Literature Review

Catalog

Media Thesis

Media Object
Our travels allow us to see the Earth anew, as if we came from somewhere else.
FRAME YOUR OWN NARRATIVE
Media, Policy, Science
constructing
Climate & Risk

How are climate and risk constructed in public perception? A timeline of events that reveal how media, policy, and science constructed the dominant narratives of climate and risk.

Take a Closer Look...

Charting isolated moments, overlapped moments, and linked threads through time to reveal the dynamics between media, policy, and science.
The timeline

FRAME YOUR OWN NARRATIVE: CONSTRUCTING RISK & CLIMATE
functions as a choose your own adventure
to contemplate, learn, add, erase.

It is a scrappy artifact that painfully resists hierarchy.
(Painful to your eyes perhaps, also painful to my impulsive breaking of rules)

This is done so you can take a ride,
and at the end ask yourself, what sticks?

A revisionist history for linear thinkers who prefer not to go
down cycles and spirals of internet holes uncovering stories
and events, and always working backwards. A documentation
of energy culture, climate consciousness, and risk perception.

** An encounter with the impossible question of what myth
means? **

And a dance through a decent chunk of the past to see the ways
stories transcend time and sneak across a variety of mediums.
AND, how the fiction we have relied on for earthly survival
deals with a newer thing called Science Fact to explain global
phenomena and the uncanny.
Searching "EARTH" on Google.
The layers of my InDesign document that categorizes the events on the timeline. I realize in retrospect that this was my method. Refer to the timeline folded in the jacket of this book or on the top right tab of the webpage.
How to ride the timeline...

1. Myth
2. Media
3. Science/Politics

Open the timeline

a) Watch how stuff expands over time

.... and how they overlap

Max Mosessian 180521
b) Notice that while stuff like this happens:

![Diagram showing USA, Oil Rig, and Katrina Floods]

This is slowly happening too...

---

c) Keep an eye out for big words

**Fortress Urbanism**

Disaster Capitalism

**Greenhouse Gas Effect**

**Global Warming**

---

d) Notice when we start seeing the world like this:

![Graph showing Peak Oil, Global Temp, Blue Marble, Ice Core]
"THINK WE MUST!"

"METAFICTION"

"CREATIVE DESTRUCTION"

"SCIENTIFICTION"

"A charming romance intermingled with scientific fact + prophetic vision"

"CAPITALISM... is by nature a form or method of economic change and not only never is but never can be stationary. This process of Creative Destruction is the essential fact about capitalism."

"DeSTRUCTION"

"CAPITALISM... is by nature a form or method of economic change and not only never is but never can be stationary. This process of Creative Destruction is the essential fact about capitalism."

"On me..."
In 1966, I had buttons made with the paranoid-sounding slogan, "Why haven't we seen the photograph of the whole Earth yet?" Well, we got the photos from NASA in 1969.

"Get clean for gene"
"SKEPTICS ORGANIZE"

"FREE RIDER"

"ECOLOGICAL FOOTPRINT"  "WEAR SUNSCREEN"

"SPLINTERING URBANISM"  "WE'RE SCREWED"

OSTROM  "GLOBAL WARMING"

"REFLEXIVE MODERNIZATION"  "FROZEN SUN"

"WEATHER"  "GLOBAL WARMING"

"TIME ANTARCTICA"  "Unsettled Science"

"SCIENTIFIC CONSENSUS"  "FINAL FANTASY"

GLAISI MINOT COAHF  "THE TWO WIDE MACHINES"

"HOCKEY STICK"  "NATURE JOURNAL"

"WORLD OZONE DAY"  "MICHAEL MANN"

"ALMANAC OF THE DEAD"  "EXXON AD IN THE PAPER"

"SOUND SCIENCE"

"SPEARHEAD"

"END OF THE WORLD"

"WE'RE SCREWED"

"GREAT CAUSE"

"DR. FRED SINGER"

"SCIENTIFIC CONSENSUS"

"RELATIVITY"

"THE OZONE DEPLETION AD"

"STORM"
We have a choice: we can continue on an unsustainable path or we can consider a message of change and give hope.

"People need such stories because humanity exists in darkness with voices of action and of power.

"Weave stories... because these dark places are silent worlds.

If you agree to 2°C, you're agreeing to cooking our continent.

Climate change is real. It is the most urgent threat facing our entire species... we need to speak for the voices drowned out by the politics of greed.

Climate manipulation? Rethinking how we control the climate to create natural disasters they can pay for to own the cities.

Climate disruption. Global climate disruption.

We've ended the war on beautiful clean coal.

We must stop this madness.

Global climate disruption.

Disasters are the End of the World

Welcome to the Age of Climate Migration

The Human Element

3.5°C

Earth Day

“Silent world..."

Senators' Climate March

D.C.

New York

The Encroachment

March for Science

An Inconvenient Sequel

People's Climate March

Climate Gentrification

AN INCONVENIENT SEQUEL

Naomi Klein

حاسب

Marauder

The Sixth Extinction

Margaret Atwood

350.org

Third culture kid

Before the Flood

Disaster Capitalism

Disaster Capitalism

Atmosphere

Cleaning Up W. C.

We have a choice: we can continue on an unsustainable path or we can consider a message of change and give hope.

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D.C.

New York

The Encroachment

March for Science

An Inconvenient Sequel

People's Climate March

Climate Gentrification
We must advocating the use of sound science lobbying through 1 in public policy decision making. A strong consensus about climate scientific evidence of hydraulic fracturing as safe. EPA lets fracking flourish. EPA does not regulate—nor does it have a legal obligation to regulate—hydraulic fracturing of methane gas production wells under the Safe Drinking Water Act. With that said, there is "no evidence" of hydraulic fracturing contaminating groundwater.

An advocate of nuclear power in the 70s, Hubbert came to emphasize solar power as a viable solution to human energy needs late in his career. By the end of the twentieth century, most petroleum experts accepted Hubbert's assertion that historical discovery rates produce more accurate resource estimates than volumetric yield methods. For the USA, Hubbert gauged half full fuel stock among conservationists who believed looming near-term exhaustion of oil supplies would deeply challenge technological civilization.

FRACFOCUS.ORG

"The phrase 'global warming' was something of a maxims... suggests that the phenomenon is something that is uniform around the world, that it is all about temperature, and that it's gradual." Limits to growth. Model Correct?

"Business-as-usual" scenario produced about forty years ago aligns well with historical data, according to Graham Turner's report Is Global Collapse Inevitable?"

"You want to wake up in the morning and think the future is going to be great, and that's what being a spacefaring civilization is all about. It's about believing in the future and thinking that the future will be better than the past. And I can't think of anything more exciting than going out there and being among the stars." SpaceX to Mars.
TREATY OF FORT LARAMIE
Sets jurisdiction for Native American tribes in present-day Dakotas, Montana, Wyoming, and Nebraska.

FLOOD CONTROL ACT
Declared flood control to be acceptable federal government activity and authorized more than 200 construction projects.
Army Corps of Engineers and Dept of Agriculture shared responsibility for these activities.

MANHATTAN PROJECT

DISSOLUTION OF STANDARD OIL
Supreme Court ruled in favor of the Sherman Antitrust Act.

SOLDIERS PRAY FOR WEATHER
General Patton distributed prayer cards to the army to pray for the rain to stop.

SHIELDS OPENS BELLAIRE RESEARCH CENTER
Shell Exploration + Production Research Laboratory established to use geographic instruments and theories to more accurately predict underwater oil and gas and to better exploit existing fields. M. King Hubbert, associate director.

OPERATION CROSSROADS
A series of 23 nuclear detonations by the USA from 1946-1958 at seven test sites on the sea, in the air, and underwater.

FLOOD CONTROL ACT
Declared flood control to be acceptable federal government activity and authorized more than 200 construction projects.
Army Corps of Engineers and Dept of Agriculture shared responsibility for these activities.

SHELTERS EXPLOSIONS + PRODUCTION RESEARCH
Laboratory established to use geographic instruments and theories to more accurately predict underwater oil and gas and to better exploit existing fields. M. King Hubbert, associate director.

US DEPT OF AGRICULTURE ADVERTISES DDT
American Petroleum Institute

FORD FOUNDATION

SMOKE & FUMES COMMITTEE
Western Oil and Gas Association meets in Las Angeles to discuss growing public concern about smog. Form committee: "would fund scientific research into smog and other air pollution issues and, significantly, use that research to inform and shape public opinion about environmental issues. The express goal of their collaboration was to use science and public opinion to prevent environmental regulations they deemed hasty, costly, and unnecessary."

US DEPT OF AGRICULTURE ADVERTISES DDT

HABITATS

COAL-FIRED ELECTRICITY
The first coal-fired electric generating station, developed by Thomas Edison, went into operation in NYC to supply electricity for household lights.

US ARMY CORPS OF ENGINEERS

STANDING ROCK SIOUX RESERVATION
Established as six smaller reservations.

RIVERS + HARBORS ACT
Required that construction plans and specific dams also be approved by the Army Corps of Engineers, who mainly built dams in the 20th c.

WE CAN DO IT!
"You can buy scientific progress by the tankful!"

SMOKE & FUMES COMMITTEE
"You can buy scientific progress by the tankful!"

US DEPT OF AGRICULTURE ADVERTISES DDT

GERMAN FUNDING TO UN PROGRAMS THROUGH THE FORD FOUNDATION

HABITATS

CLOUD SEEDING IN TEXAS DROUGHT
Department of Agriculture attempts to save crops by controlling the weather.

AMERICAN PETROLEUM INSTITUTE

ENRICHMENT - ACHIEVING ENERGY INDEPENDENCE

ROCKEFELLER FOUND STANDARD OIL
1775

SHELL WORRIED ABOUT OIL SCARCITY AFTER WW2
Shell Exploration + Production Research Laboratory established to use geographic instruments and theories to more accurately predict underwater oil and gas and to better exploit existing fields. M. King Hubbert, associate director.

GERMAN FUNDING TO UN PROGRAMS THROUGH THE FORD FOUNDATION

ENRICHMENT - ACHIEVING ENERGY INDEPENDENCE

FORD FOUNDATION

GETHIN'S REPORT ON WHAT TO DO WITH THE WORLD'S MOST WELL-ENDOWED FOUNDATION

ENRICHMENT - ACHIEVING ENERGY INDEPENDENCE

MAXIMUS 180524

POLITICS THINK-TANKS ORGANIZATIONS AGENCIES INDUSTRY IPCC

FRAME YOUR OWN NARRATIVE: CONSTRUCTING RISK & CLIMATE POLICY MAKING
The Kyoto Protocol has become a focal point for discussions on climate change and its implications for the global community. The protocol aims to address the challenge of greenhouse gas emissions and their impact on the environment.

The Stern Review, conducted by Sir Nicholas Stern, emphasizes the economic risks associated with climate change. It highlights the need for urgent action to mitigate climate change impacts. The review underscores the importance of reducing carbon emissions and adapting to the changing climate.

The Stern Review points out that delaying action on climate change could lead to severe economic consequences. It advocates for a well-structured, effective, and legally binding international agreement to address climate change.

The Stern Review also notes that the impacts of climate change are likely to be unevenly distributed, with developing countries bearing a disproportionate burden. It calls for international cooperation and support for vulnerable populations.

The report suggests that a comprehensive approach to climate change is necessary, involving mitigation, adaptation, and international cooperation. It advocates for the reduction of greenhouse gas emissions through energy efficiency, renewable energy, and carbon capture and storage technologies.

The Stern Review highlights the need for a global shift towards sustainable development, emphasizing the importance of reducing emissions and adapting to the changing climate. It concludes that immediate action is required to prevent catastrophic outcomes from climate change.
Take a closer Look . . .

16\textsuperscript{TH} c Puritan Culture

\textit{Disaster as part of God's design: a consoling religious framework}

\textbf{SIN} \rightarrow \textbf{DISASTER/\textbf{PUNISHMENT}} \rightarrow \textbf{REBIRTH/\textbf{SALVATION}} \rightarrow \textbf{HOPE}

\textbf{17\textsuperscript{TH} c Enlightenment}

\textbf{Age of Reason}

\textbf{17\textsuperscript{TH} c Scientific Revolution}

\textit{Descartes; belief that science means observable + repeatable experiments}

cultural narrative
Industrial Revolution

The mechanization of production and birth of consumer culture

1750 Anthropocene

"The inception of humanity as a geophysical force on a planetary scale."

energy risk society

18TH c Disaster Narratives

The most powerful myth in America

CALAMITY → OPPORTUNITY → PROGRESS

Wood 1880 Coal
Cooper, L. David, "Panorama of the Old Testament."

After the Flood has said: I will wipe out everything

(Top) Francois de Nome, *The Fall of Atlantis*. c. 1600.

Seeing the Earth

Official images released by NASA.

1935 1947 1966 1968

FROM BALLOON
Explorer II
22 km

FROM ROCKET
Surface from V2 Rocket
160 km

FROM THE MOON
Lunar Orbiter 1
380,000 km

EARTHRISE
Apollo 8
380,000 km
1972
BLUE MARBLE
Apollo 17
29,000 km
The first and only full photograph of Earth

1990
PALE BLUE DOT
Voyager 1
6 billion km

2003
FROM MARS
NASA Global Surveyor
139,000,000 km

2013
SELFIE
NASA Mike Hopkins
20,000 km
On this cartoon world, it is dark in Tokyo, Moscow, London, New York, Los Angeles, Honolulu, and Sydney simultaneously.

55 likes
flatearthlogic4_neanderthals 🎁 #ShittyCGI
#NasaLies #Woke #Golf #UnderPar #lol
#TheEarthIsFlat #FlatEarth #Pizzagate
#OperationHighJump #OperationFishbowl
#OperationPaperclip #TheAntarcticTreaty #Agartha
#Tesla #ElonMusk #Trump #Obama
#911WasAnInsideJob #illuminati #Adrenochrome
#Egypt #History #ResearchFlatEarth
Blue Marble

When you see a picture of the Earth, it really is this sort.

Greenhouse Effect

by Mehitabel Glenhaber

Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, every hero and coward, every creator and destroyer of civilization, every king and peasant, every hunter and forager, every expert and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there--on a mote of dust suspended in a sunbeam.

The Earth is a very small stage in a vast cosmic arena. Think of the rivers of blood spilled by all those generals and emperors so that, in glory and triumph, they could become the momentary masters of a fraction of a dot. Think of the endless cruelties visited by the inhabitants of one corner of this pixel on the scarcely distinguishable inhabitants of some other corner, how frequent their misunderstandings, how eager they are to kill one another, how fervent their hatreds.

Our posturings, our imagined self-importance, the delusion that we have some privileged position in the Universe, are challenged by this point of pale light. Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves.

The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Visit, yes. Settle, not yet. Like it or not, for the moment the Earth is where we make our stand.

It has been said that astronomy is a humbling and character-building experience. There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly with one another, and to preserve and cherish the pale blue dot, the only home we’ve ever known.
Pale Blue Dot

Carl Sagan
"Journeys in Space and Time" of Carl Sagan's 1980's series, Cosmos. Episode one found on YouTube.
Rachel Carson

Rachel Carson was an American marine biologist, author, and conservationist whose book Silent Spring and other writings are credited with advancing the global environmental movement.


Carson starts the book with fiction

1. A Fable for Tomorrow

There was once a town in the heart of America where all life seemed to live in harmony with its surroundings. The town lay in the midst of a checkerboard of prosperous farms, with fields of grain and hillsides of orchards where, in spring, white clouds of bloom drifted above the green fields. In autumn, oak and maple and birch set up a blaze of color that flamed and flickered across a backdrop of pines. Then foxes barked in the hills and deer silently crossed the fields, half hidden in the mists of the fall mornings.

Among them are many that are used in man's war against nature. Since the mid-1940s over 100 basic chemicals have been created for use in killing insects, weeds, rodents, and other organisms described in the modern vernacular as "pests"; and they are sold under several thousand different brand names.

These sprays, dusts, and aerosols are now applied almost universally to farms, gardens, forests, and homes — nonselective chemicals that have the power to kill every insect, the "good" and the "bad," to still the song of birds and the leaping of fish in the streams, to coat the leaves with a deadly film, and to linger on in soil — all this though the intended target may be only a few weeds or insects. Can anyone believe it is possible
"We need a Bill of Rights against the 20th c. prisoners of the human race" - William O. Douglas, Supreme Court Justice

Silent Spring is also published in the New Yorker, Audubon, selected for Book-of-the-Month Club

"What could happen to the USA if chemical defenses against pests were lost."

"Our heedless and destructive acts enter into the vast cycles of the earth and in time return to bring hazard to ourselves."

"On camera, Carson’s careful way of speaking dispelled any notions that she was a shrew or some kind of zealot."

"The real threat to man is insects taking over"

"Until publication of Silent Spring by Rachel Carson, people were generally unaware of the toxicity of pesticides."

"everyday exposure to DDT leaves 1 in 10 parts per million in body tissue" - USA Toxicologist

JFK says White House is reading "Ms. Carson's Book"

Clean Air Act
First federal legislation for air pollution control; program and research into techniques for monitoring and controlling air pollution

Congressional Record
John Lindsay inserts a Carson's New Yorker piece into the Congressional Record

Earth Day

EPA form, calls itself the "extended shadow of Rachel Carson"

CARSON TESTIFIES BEFORE THE SENATE
CARSON + OPPONENT ON CBS REPORTS

1962 MONSEANTO

CARSON PLAYS SOUNDS OF THE OCEAN TO COMMENCE A SPEECH AT THE ASTOR HOTEL

PESTICIDE RESIDUE ON FOOD + IN HUMAN BODY
Considered "safe" to have 127 different pesticide residues on crops

CARSON DIES OF BREAST CANCER

Emphasizes million, as if this number is negligible, but who watching CBS reports understands what 1 in 10 ppm means?
Counterculture

The Whole Earth Catalog began in 1968 and officially ended in 1971, although Stewart Brand and others have continued to publish catalogs. In between the catalogs, supplements were published. The supplements revised mistakes, incorporated user feedback, and included events going on around the country. Brand continued to publish through the 1970's with the CoEvolution Quarterly, a version of the supplements. The Quarterly was funded through the Point Foundation, a publishing company Brand began with the proceeds from the original Catalog. In the 80's Brand began the Whole Earth Software review, a testament to his belief in tools and technology. In the 90's, CoEvolution and Software were combined into the Whole Earth Review.

1970
The Outlaw Area
Notably furthered Buckminster Fuller's concept of outlaws

1974
The Updated Last Whole Earth Catalog
The final issue of the catalog had Stay Hungry, Stay Foolish.
Written on the back cover.
This was popularized by Steve Jobs's famous commencement speech at Stanford University in 2005, available on YouTube.

1975
The Gaia Hypothesis
Conceptions of the Earth as Gaia.

1975
O'Neill's Space Colonies
An issue of the CoEvolution Quarterly devoted to Gerard O'Neill's ideas about space exploration. It begins with O'Neill's essay "The High Frontier," and an interview with Brand titled "Is the surface of a planet really the right place for an expanding technological civilization?"
All are available for download as PDF at wholeearth.com
Earth Day, 1970

The first Earth Day was the idea of Gaylord Nelson, in response to Santa Barbara oil spill in 1969. 20 million people participated. The events were led by Denis Hayes, one year out of Stanford, where he was student body president.

I found all of these pictures on the internet. It was fascinating to go through not only the pictures of protest but the images created. Even on the first Earth Day, cities created their own campaigns and posters that reflected different priorities, attitudes, and calls to action.
EARTH DAY — APRIL 22

Don't breathe yourself to death!

God isn't dead —
He just can't see through the smog.

Is there intelligent life on earth?

Our Earth
Our Country
Our Environment
Our Problems

Public Assembly Songs:
10:00

Movement School: Arrives at 11:00 am and starts
at each corner of city.

Announcements, speech, and parade.

Performances: 11:00 – 12:15

Speakers:

Major Lindsay

Wives of Art Section: 11:15 – am
Activism?

Dystopia doomsday talk...

"The ultimate environmentalist argument would be to drop the concept of Nature + World, to cease identifying with them, to swear allegiance to coexistence with nonhumans without a World, without some nihilistic Noah's Ark."

1980
Environmental Doomsday: Bad news good, good news bad

Learning How to Die in the Anthropocene

BY ROY SCHNITZER NOVEMBER 10, 2015 3:00 PM

2018
Film Stills, Merchants of Doubt (2014) Directed by Robert Kenner based on Naomi Oreskes' and Eric M. Conway's 2010 book by the same name.
There's no evidence that these are harming us.

NARRATOR: A new Edison, designed to last a lifetime.

Catastrophic global warming is a hoax.

There's no scientific consensus.

There is no consensus. This is a myth.

It is not known whether cigarettes cause cancer.

There really isn't a scientific consensus.

There are other Point Sparberries out there.
GLANTZ:
But when you went to policy makers or the media and talk about how dishonest and manipulative they were.
Film Stills, Merchants of Doubt (2014) Directed by Robert Kenner based on Naomi Oreskes' and Eric M. Conway's 2010 book by the same name.
CNN GLOBAL DEBATE
THE WATER BY A NEARBY FERRY BOAT CAN JOHN MARK KARR, THE

Let's talk
to a couple of experts.

I'm not a scientist.

although I do play one
on TV occasionally.

Okay, hell,
more than occasionally.
"Get the science out there, into the media, politicians will listen. We can solve this..."

...so there is hope that, as the science continues to emerge, the public will become aware, and our political leaders will solve this problem. But that's not what happened."

Film Stills, Merchants of Doubt (2014) Directed by Robert Kenner based on Naomi Oreskes' and Eric M. Conway's 2010 book by the same name.
"This is a debate, but this is not a scientific debate."

"Climate is just a mechanism. It's really about politics and political control... and control of economic means of production."
are forgetting about the White House effect.
Those who think we're powerless with this greenhouse effect
You can buy scientific progress "by the tankful"
Global Warming Has Begun, Expert Tells Senate

Sharp Cut in Burning of Fossil Fuels Is Urged to Battle Shift in Climate

By PHILIP SHABECOFF
Special to The New York Times

WASHINGTON, June 23 — The earth has been warmer in the first five months of this year than in any comparable period since measurements began 130 years ago, and the higher temperatures can now be attributed to a long-expected global warming trend linked to pollution, a space agency scientist reported today.

Until now, scientists have been cautious about attributing rising global temperatures of recent years to the predicted global warming caused by pollutants in the atmosphere, known as the "greenhouse effect." But today Dr. James E. Hansen of the National Aeronautics and Space Administration told a Congressional committee that it was 90 percent certain that the warming trend was not a natural variation but was caused by a buildup of carbon dioxide and other artificial gases in the atmosphere.

Continued on Page A14, Column 3

An Impact Lasting Centuries

Dr. Hansen, a leading expert on climate change, said in an interview that there was no "magic number" that showed when the greenhouse effect was actually starting to cause changes in climate and weather. But he added, "It is time to stop waiting so much and say that the evidence is pretty strong that the greenhouse effect is here."

If Dr. Hansen and other scientists are correct, then humans, by burning of fossil fuels and other activities, have altered the global climate in a manner that will affect life on earth for centuries to come.

Dr. Hansen, director of NASA's Institute for Space Studies in Manhattan, testified before the Senate Energy and Natural Resources Committee.

Some Dispute Link

He and other scientists testifying before the Senate panel today said that perceptions of the climate change that is now apparently occurring mean that the Southeastern and Midwestern sections of the United States will be subject to frequent episodes of very high temperatures and droughts in the next few decades and beyond. But they cautioned that it was not possible to attribute a specific heat wave to the greenhouse effect, given the still limited state of knowledge.
Climate Scientist Dr. James Hansen testifying in-front of Congress in 1988.

1988

It is already happening now
1998

the

"hockey stick"

graph

Unsettled Science

Knowing that weather forecasts are reliable for a few days at best, we should recognize the enormous challenge facing scientists trying to predict climate change and its impact over the next century. In spite of everyone's awareness of the problem, it is surprising that fundamental gaps in knowledge leave scientists unable to make reliable predictions about future changes.

A recent report from the National Research Council (NRC) raises important issues. It highlights two primary areas of concern: (1) the potential for catastrophic climate change and (2) the impact of human activities on the climate system.

The NRC report confirms that Earth's surface temperature has risen by about 1 degree Fahrenheit over the past 150 years. Some use this result to argue that climate change is due to global warming, and they point to storms or floods that destroy crops or housing. However, other scientists remain skeptical about the influence of human activities on the climate system. Considerable research is needed to address this issue.

Ecological evidence indicates that climate and greenhouse gases are linked. Moreover, computer models rely on historical data to predict future changes. However, the models are not perfect, and they can be improved through additional research.

Moreover, computer models relied upon by climate scientists predict that lower atmospheric temperatures will rise as fast as or faster than temperatures at the surface. However, only within the last 20 years has there been a reliable measurement of temperatures at the surface. Advances in satellite technology have allowed scientists to monitor changes in the atmosphere more accurately.

Even less is known about the potential positive or negative impacts of climate change. In fact, many academic studies and field experiments have demonstrated that increased levels of carbon dioxide can promote crop and forest growth.

So, while some argue that the science is settled and governments should focus only on near-term policies—that is, a prudent, rational, and environmentally friendly, future scientific research will help us understand how human activities and natural climate change may affect the earth and help determine what actions are necessary to address this long-term.

Science has given us enough information to know that climate changes may pose long-term risks to human health. Moreover, governments and businesses should take reasonable actions to respond to the issue.

ExxonMobil

An Exxon Mobil advertisement titled "Unsettled Science" appeared in The New York Times in March 2000
2004
The Scientific Consensus on Climate Change

Naomi Oreskes

Policy-makers and the media, particularly in the United States, frequently assert that climate science is highly uncertain. Some have used this as an argument against adopting strong measures to reduce greenhouse gas emissions. For example, while discussing a major U.S. Environmental Protection Agency report on the risks of climate change, then EPA administrator Christine Whitman argued, "As [the report] went through review, there was less consensus on the science and conclusions on climate change" (1). Some corporations whose revenues might be adversely affected by controls on carbon dioxide emissions have also alleged major uncertainties in the science (2). Such statements suggest that there might be substantive disagreement in the scientific community about the reality of anthropogenic climate change. This is not the case.

The scientific consensus is clearly expressed in the reports of the Intergovernmental Panel on Climate Change (IPCC). Created in 1988 by the World Meteorological Organization and the United Nations Environmental Programme, IPCC's purpose is to evaluate the state of climate science as a basis for informed policy action, primarily on the basis of peer-reviewed and published scientific literature (3). In its most recent assessment, IPCC states unequivocally that the consensus of scientific opinion is that Earth's climate is being affected by human activities. "Human activities ... are modifying the concentration of atmospheric constituents ... that absorb or scatter radiant energy ... [M]ost of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations" (4).

IPCC is not alone in its conclusions. In recent years, all major scientific bodies in the United States whose members' expertise bears directly on the matter have issued similar statements. For example, the National Academy of Sciences report, Climate Change Science: An Analysis of Some Key Questions, begins: "Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise" (5). The report explicitly asks whether the IPCC assessment is a fair summary of professional scientific thinking, and answers yes: "The IPCC's conclusion that most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations accurately reflects the current thinking of the scientific community on this issue" (p. 3 in (5)).

Others agree. The American Meteorological Society (6), the American Geophysical Union (7), and the American Association for the Advancement of Science (AAAS) (8) all have issued statements in recent years concluding that the evidence for human modification of climate is compelling (9).

The drafting of such reports and statements involves many opportunities for comment, criticism, and revision, and it is not likely that they would diverge greatly from the opinions of the societies' members. Nevertheless, they might downplay legitimate dissenting opinions. That hypothesis was tested by analyzing 928 abstracts, published in refereed scientific journals between 1993 and 2003, and listed in the ISI database with the keywords "climate change" (9).

The 928 papers were divided into six categories: explicit endorsement of the consensus position, evaluation of impacts, mitigation proposals, methods, palaeoclimate analysis, and rejection of the consensus position. Of all the papers, 75% fell into the first three categories, either explicitly or implicitly accepting the consensus view; 25% dealt with methods or palaeoclimate, taking no position on current anthropogenic climate change. Remarkably, none of the papers disagreed with the consensus position. Admittedly, authors evaluating impacts, developing methods, or studying palaeoclimatic change might believe that current climate change is natural. However, none of these papers argued that point.

This analysis shows that scientists publishing in the peer-reviewed literature agree with IPCC, the National Academy of Sciences, and the public statements of their professional societies. Politicians, economists, journalists, and others may have the impression of confusion, disagreement, or discord among climate scientists, but that impression is incorrect.

The scientific consensus might, of course, be wrong. If the history of science teaches anything, it is humility, and no one can be faulted for failing to act on what is not known. But our grandchildren will surely blame us if they find that we understood the reality of anthropogenic climate change and failed to do anything about it.

Many details about climate interactions are not well understood, and there are ample grounds for continued research to provide a better basis for understanding climate dynamics. The question of what to do about climate change is also still open. But there is a scientific consensus on the reality of anthropogenic climate change. Climate scientists have repeatedly tried to make this clear. It is time for the rest of us to listen.
2005. Google search. “George Bush Doesn’t Care” shows Kanye West’s statement made during NBC’s “A Concert for Hurricane Relief” special, which aired live four days after Hurricane Katrina.
just so we’re all clear on the concept.....
"Heroism is successful foolishness; and is actual space travel anything but government-funded foolishness?"

- Fabien Reimann

IF WE CAN DO THIS WHY CAN'T WE DO......??

The control of nature
is a phrase conceived in arrogance. born of the Neanderthal age of
biology and philosophy. when it was supposed that nature exists for the
convenience of man."
Think Locally
Act Globally
Climate Media & Urban Design Catalog

Of the other ways climate is mediated: through art, performance, and experience. And of the ways urban planners and design address it.

Access Tools

For emotional learning, science communication, risk perception, and social action.
FUNCTION

A catalog of

1. tools and ideas from many types of doers and thinkers

2. visual representations of climate/risk from creatives and authorities

PURPOSE

An accounting (play)book that makes lists in order not to die. An account of the many powers of visual representation and storytelling, both fiction and not-fiction.
MEDIA:
The means by which MEANING is communicated
Environments are media, media are environments
Ensembles of natural + human craft
The word medium comes from water
Urban Design
Lower Manhattan Plan
Each scenario poses an opportunity to raise questions around the futures of energy, community, finance, and work in the region. Ranging from the rapid transition toward renewable energy to the redefinition of leisure in an era of intense automation, these seismic shifts go hand-in-hand with reimagining the Bight as a new open space for America’s most populous region, rather than an increasingly untenable line in the sand.
While Urbanists Imagine NYC’s Retreat From the Coast, It’s Already Happening

Sea Bright, New Jersey (2030)
A vanishing barrier island refuses the inevitable and becomes a test bed for “the flood life.”

Mastic Beach, New York (2050)
Well-managed retreat produces one of Long Island’s most desirable retirement communities nestled inland from a coastal “energy farm.”

Jamaica Bay, New York (2067)
A half-submerged Jamaica Bay protects its edges while doubling as New York City’s new sunken central park.
1700 MILES OF SEAWALL CONSTRUCTION SEEMS INEVITABLE

117-240 ft levee protection

BARRIER ISLANDS REDUCE THE HEIGHT OF SEAWALLS

4' - 10' levee protection

NEW ECOLOGICAL SEQUENCES OF BLUE DUNES
Rebuild by Design
REBUILD BY DESIGN

Hunts Point Lifelines

New Meadowlands

Living with the Bay
The goal of the Dutch Room for the River Programme is to give the river more room to be able to manage higher water levels. At more than 50 locations, measures are taken to give the river space to flood safely. Moreover, the measures are designed in such a way that they improve the quality of the immediate surroundings. The Room for the River programme will be completed by approximately 2016.
Masters Thesis in Urban Ecologies at Parsons School of Design. The project explores the possibilities of mapping as a critical social practice of resistance against uneven forms of urban development.
Sarah Rothberg
Investing in Futures
Playing Cards

A deck of cards, world-building workshops, and artworks designed to help you imagine alternative global futures.

"Maybe you should be imagining these futures yourself."
Proposes a radical rethinking of San Francisco’s urban waterfront post sea-level rise. The proposal renders the existing hard edges of the waterfront as new “soft systems” that would include aquatic parks, community gardens, wildlife refuges and aquaponic farms. A synthetic architecture is introduced that blurs the distinction between building, landscape, infrastructure and machine. Using thousands of sensors and motorized components, the massive urban scale robotic structure harvests rainwater and fog, while modulating air flow, solar exposure and intelligent building systems.
The project speaks to the intertwined concerns of climate change, melting glaciers, and energy intensive desalination industries. The project departs from an observation by Prince Mohammed Al Faisal that "an Iceberg project is a better enterprise than oil." In 1976, Prince Al Faisal was responding to the growth of desalination plants in a dry region with high water demands. In a large-scale manipulation of environmental processes, he asked: Why simply allow the billions liters of fresh and pure water that make up icebergs to be diluted in oceans? In response, he along with George Mougin and Paul Emile Victor, created the Iceberg Transport International venture company to study if an iceberg could be towed the 14,000km from Antarctica to Jeddah.

Of Oil and Ice recovers this historical episode to propose a geostory that critically reflects on the energy intensive desalination plants and more broadly on the geographic implications of climate change. In a whiff of dark ecology, the project internalizes the melting of ice caps from Greenland to nourish the rising water demands of the Gulf. This story solicits a discussion on both the environmental future of the region and its contemporary practices.
"An estuary demands gradients not WALLS.
Fluid occupancies not DEFINED LAND USES.
Negotiated moments not HARD EDGES.
The accommodation of the sea not A WAR AGAINST IT.

Which continues to be fought
by engineers and administrators
as they carry seawalls
inland
to keep the sea out."

Culture of

**MAN v NATURE  SEA v LAND**

derives from the biblical story of creation,
and carried to development through the
European enterprise of mapping

Authors’ goal: education and administration in the **public imagination**
Petrochemical America
Richard Misrach & Kate Orff
Book
Activism:
"The ethical imperatives of climate change, uncertainty, and the need to act now." expand a traditionally service-based discipline by bridging physical-social

"In order to effect positive change in a world in constant flux, landscape architects and urban designers have to synthesize other disciplines — from science to storytelling community organizing — and must be able to foster connections between communities and their environments."

Climate change demands "new ways of seeing ... that can bear witness to shifting baseline conditions."

"Reconceive urban landscape design as a form of activism"

design driven
participatory
science-based
“Issues as massive as global climate change can feel well beyond our capacity to effect positive outcomes.”

“spur a public debate about achievable solutions.”
Role of speculation in the discipline of architecture

Lecture
‘The Necessity of Fiction in Architecture.’
(MIT, June 1994)
Art
In the past 16 days, over one-million visitors have treaded lightly across Italy’s Lago d’Iseo in the name of artists Christo and Jeanne-Claude. #TheFloatingPiers art installation valiantly touches upon the connection between humanity, nature and the intermediary, art. See more photos from our photo editor @robertrieger - link in bio.

#FloatingPiers #art #lake #landscape #Italy #nature

View all 13 comments
erik089 @johannamariew
willolapin Another one @katrinabacopanos
Robert Smithson
Map of Broken Glass (Atlantis)
"In the summer of 1963 I began drawing a map of an imaginary city. The work started as a doodle done in the spare time I had while working at a tedious job. I continued to add to that map through the years until, in 1985, I set it aside to put my free time to other use. The Map was stored in the attic of our home in Cold Spring, New York. It gathered dust. My son, Henry, found it one day while rummaging around. He brought it down to me and asked what it was. Seeing it then triggered me to dust it off and continue the project. It now comprises almost 3100 individual eight by ten inch panels. Its execution, in acrylic, marker, colored pencil, ink, collage, and inkjet print on heavy paper, is dictated by the interplay between an elaborate set of rules and randomly generated instructions."
Agnes Denes,  
Wheatfield - A Confrontation  
Battery Park Landfill, 1982

"Two acres of wheat planted and harvested by the artist on the Battery Park landfill, Manhattan.  
Summer 1982.

After months of preparations, in May 1982, a 2-acre wheat field was planted on a landfill in lower Manhattan, two blocks from Wall Street and the World Trade Center, facing the Statue of Liberty. Two hundred truckload of dirt were brought in and 285 furrows were dug by hand and cleared of rocks and garbage. The seeds were sown by hand and the furrows covered with soil. The field was maintained for four months, cleared of wheat smut, weeded, fertilized and sprayed against mildew fungus, and an irrigation system set up. The crop was harvested on August 16 and yielded over 1000 pounds of healthy, golden wheat.

Planting and harvesting a field of wheat on land worth $4.5 billion created a powerful paradox.  
Wheatfield was a symbol, a universal concept; it represented food, energy, commerce, world trade, and economics. It referred to mismanagement, waste, world hunger and ecological concerns. It called attention to our misplaced priorities. The harvested grain traveled to twenty-eight cities around the world in an exhibition called "The International Art Show for the End of World Hunger", organized by the Minnesota Museum of Art (1987-90). The seeds were carried away by people who planted them in many parts of the globe.

Postscript: The above text that was written in 1982 has now added poignancy and relevance after 9/11/01
A plume of smoke rises from a burn of collected oil. May, 2010. A total of 411 controlled burns were used to try rid the Gulf of the most visible surface oil leaked from the BP Deepwater Horizon.

Ships gather near remaining oil platforms near the site of the Deepwater Horizon wellhead, leaving oily wakes as they move through the polluted water.

A C-150 plane sprays dispersant.

Brown pelicans (Pelecanus occidentalis) covered in crude oil from BP’s Deepwater Horizon wellhead spill wait to be cleaned at the International Bird Rescue Research Center in Fort Jackson, Louisiana.
"Uranine, a water-soluble dye used to test ocean currents, was poured into rivers in urban and rural settings, turning the rivers green. Carried along by the currents, the dye radically changed the appearance of the rivers and their surroundings. Eliasson has carried out this unannounced intervention in six different locations: Bremen, Germany, 1998; Moss, Norway, 1998; The Northern Fjallabak Route, Iceland, 1998; Los Angeles, 1999; Stockholm, 2000; and Tokyo, 2001. Response to the intervention varied greatly depending on the location."
Chinese race to clear algae from Olympic sailing venue

More than 300 workers are battling against time to control a thick algae layer that has carpeted the Olympic sailing venue in Qingdao, near China, officials said.

Qingdao Olympic Sailing Centre officials warned that it would take two weeks to clear the growth, which competitors — including members of the British sailing team — are having difficulty training in as the run-up to the games. It has blocked practice routes and covered almost one-third of the competition area.

Downing, and his colleagues — Tonya DelSontro, a researcher at the University of Geneva and Jake Beaulieu, a biologist with the Environmental Protection Agency — recently studied the relationship of lake algae to the release of greenhouse gases. The researchers concluded that at the current rate, the atmospheric impact of carbon dioxide, methane and nitrous oxide from lakes and reservoirs is equal to 20 percent of the carbon dioxide emissions from burning fossil fuels. Their study appears in the journal *Limnology and Oceanography Letters*.
Article on placesjournal.org: "Beyond Google Earth"
Satellite imagery might seem neutral, but it is constructed by systems which not only present but also transform the visual data.

In our image-saturated culture, it’s natural to feel skeptical about the veracity of photographs — we understand that an image shows nothing more than a decontextualized slice of space, a particular spot at a moment in time. Yet certain types of photography have yet to earn our distrust. I am thinking especially of satellite photos. Offering what can appear an almost definitive god’s-eye view, and avoiding the subjective biases of human picture makers, machine-made satellite images might seem the ultimate example of neutral, just-the-facts visual documentation.
Article on placesjournal.org:

"Beyond Google Earth"

Satellite imagery might seem neutral, but it is constructed by systems which not only present but also transform the visual data.

Artist's work considers the way computer vision systems apprehend the world, and the way in which automated image production entangles people and things in increasingly complex ways.

"I collect Google Earth images. I discovered them by accident, these particularly strange snapshots, where the illusion of a seamless and accurate representation of the Earth's surface seems to break down. I was Google Earth-ing, when I noticed that a striking number of buildings looked like they were upside down."

Clement Valla
Postcards from Google Earth, The Universal Texture Photography (?)
"A body which feels part of the space, rather than having a body that is just infront of a picture"

"With such a big space, the problem is obviously there is a discrepancy between what your body can embrace and what the space in that sense is. So here I had a hope that by inserting some natural elements, I could make this space tangible."

"How do we configure the relationship between our bodies and the space? How do we know that being in a space makes a difference?"
If you have a waterfall in there, right out there at the horizon; you look at the waterfall and you go, "Oh, the water is falling really slowly." And you go, "My god it's really far away and it's a giant waterfall." If a waterfall is falling faster, it's a smaller waterfall which is closer by because the speed of falling water is pretty constant everywhere. And your body somehow knows that. So this means a waterfall is a way of measuring space.

Of course being an iconic city like New York, that has had an interest in somehow playing around with the sense of space, you could say that New York wants to seem as big as possible. Adding a measurement to that is interesting; the falling water suddenly gives you a sense of, "Oh, Brooklyn is exactly this much -- the distance between Brooklyn and Manhattan, in this case the lower East River is this big."
Roni Horn
Library of Water
Vatnasafn, Iceland

Art installation in a former library. 24 floor-to-ceiling cylinders of water from glaciers in Iceland.
Spencer Tunick
Photography

Sea of Hull

"It's the idea that the bodies and humanity is flooding the streets"

Drowning World is my attempt to explore the effects of climate change in an intimate way, taking us beyond faceless statistics and into the individual experiences of its victims.

I began work on Drowning World in 2007 when I photographed two floods that occurred within weeks of each other, one in the UK and the other in India. I was deeply struck by the contrasting impacts of these floods, and the shared vulnerability that seemed to unite their victims.

Since then I have endeavored to visit flood zones around the world, travelling Haiti, Pakistan, Australia, Thailand, Nigeria, Germany, The Philippines, Bangladesh, Brazil, the USA and returning again to India and the UK recently in search of these commonalities and differences.


"Problematize our relationship with images of apocalypse.... floods, unlike most apocalyptic imagery, are not purely dreams, allegories, or devices; they are based on natural science research. on the calculations of supercomputers that project present ocean temperatures into an uncertain future. They refer not only to the future, but to the recent past of extreme weather events."

5:00 minute loops.
Dimensions variable: custom framed 24 monitor with MPlayer for 1920×1080 projection or monitor.

Marina Zurkow Elixir I, ii, ii, iv. Series of four works 5:00 minute loops. 2009.
Dear Climate Posters,  
2014- Ongoing

"Dear Climate is a collection of agitprop posters and meditative audio experiences that help you meet, befriend, and become climate change. Please distribute freely."
François-Xavier Lalanne
Getty Station
New York City
During the 2015 Paris Climate Change Conference / COP 21 of the United Nations Framework Convention on Climate Change (UNFCCC), major contemporary artists are mobilizing action through art projects displayed in the public spaces of "Greater Paris."

A charity auction of 50 works from 14 art projects will be organized by Christie’s. The benefits will go to 14 on-the-ground actions both fighting desertification and supporting adaptation to climate change.

Support: UNFCCC, The French Ministry of Culture, Christie’s

Supported NGOs: AMDER (Peru), Agrosad (Lao), WSF (Senegal and Madagascar), Cadre (Argentina), Gramenea Vikas Samiti (India), GRET (Democratic Republic of Congo), Naga (Kenya), Our Soil (Jordan), Permacultura Global (Jordan), Raddo (Algeria, Morocco, Mauritania and Tunisia), Scope (Pakistan), Tree Aid (Ethiopia)
Art installation in a Westervoot flood channel commissioned by the Dutch Water Board to "raise awareness about the power and poetry of water." It simulate what the Netherlands would look like if dikes did not exist and the country was completely flooded.

Installation continued to:
Across the Netherlands
Paris
Madrid
London
Sarah Cameron Sunde
36.5
a durational performance with the sea

36.5 acknowledges the temporary nature of all things and considers our contemporary relationship to water: as individuals, in community, and as a civilization.

A time-based project spanning seven years and six continents: Sunde stands in a tidal area for a full cycle, usually 12-15 hours, as water engulfs her body and then reveals it again. The public is invited to participate by joining Sarah in the water and by marking the passing hours from the shore. The project began in 2013 as a response to Hurricane Sandy’s impact on New York City.

Performances:
Maine, Mexico, San Francisco, The Netherlands, Bangladesh

“...it wasn’t long before she was up to her ankles, and now she’s like up to here.”

“She is trying to build awareness, that’s something we can’t engineer. That comes out of a community.”

People join Sarah in the San Francisco Bay.

Will you stand with me?
Choose One
- Yes
- Maybe
- Not in water, but I’ll stand with you on land!
Olafur Eliasson & Minik Rosing
Icewatch
Paris, COP21, 2015
88 Cores descends two miles through the Greenland Ice Sheet in one continuous pan dating back more than 110,000 years at bedrock. The GISP2D Ice Core was drilled between 1989-1995 as part of the the Greenland Ice Sheet Project, research sponsored by The National Science Foundation. The pace and scale of the work is a gesture towards deep time and the gravity of climate change.
Her own bio: "Documenting climate change in pastel on paper"
Katie Paterson
Vatnajökull (the sound of)
Performance

A live phone line was created to an Icelandic glacier, via an underwater microphone submerged in Jökulsárlón lagoon, an outlet of Vatnajökull. The number 07757001122 could be called from any telephone in the world, and the listener would hear the sound of the glacier melting.
Sound recordings from three glaciers in Iceland were pressed into three records, then cast and frozen using the meltwater from each corresponding glacier. The discs of ice were then played simultaneously on three turntables until they melted completely.
Tools
SPIEGEL Interview with Umberto Eco

'We Like Lists Because We Don't Want to Die'

By Susanne Beyer and Lothar Gorris

The list is the origin of culture. It's part of the history of art and literature. What does culture want? To make infinity comprehensible. It also wants to create order — not always, but often.

And how, as a human being, does one face infinity? How does one attempt to grasp the incomprehensible?

Through lists, through catalogs, through collections in museums and through encyclopedias and dictionaries. There is an allure to enumerating how many women Don Giovanni slept with: It was 2,063, at least according to Mozart's librettist, Lorenzo da Ponte. We also have completely practical lists — the shopping list, the will, the menu — that are also cultural achievements in their own right.

...At first, we think that a list is primitive and typical of very early cultures, which had no exact concept of the universe and were therefore limited to listing the characteristics they could name. But, in cultural history, the list has prevailed over and over again. It is by no means merely an expression of primitive cultures. A very clear image of the universe existed in the Middle Ages, and there were lists. A new worldview based on astronomy predominated in the Renaissance and the Baroque era. And there were lists. And the list is certainly prevalent in the postmodern age. It has an irresistible magic.

...We like lists because we don't want to die.
The Infinity of Lists (2009)

'A lavish, curious catalogue about catalogues ... Eco has always had an eclectic, esoteric mind, and a meander around the byways of his brain is a joy indeed' Scotland on Sunday. 'A characteristic product of this extraordinary writer and polymath: learned, sparkling, insightful, provocative, packed full of intriguing and arcane information' Mary Beard in the Guardian. 'Flaunting his extraordinary erudition but flaunting it modestly ... the book is gorgeously illustrated, a beautiful object ... its creamy pages are a pleasure to turn, its various typefaces are not just elegant but appropriate to the needs of the text, its illustrations a joy to study, its translation impeccable' Gilbert Adair in the Spectator.

In the history of Western culture we find lists of saints, ranks of soldiers, catalogues of grotesque creatures or medicinal plants, and hordes of treasure. This infinity of lists is no coincidence: a culture prefers enclosed, stable forms when it is sure of its own identity, while when faced with a jumbled series of ill-defined phenomena, it starts making lists. The poetics of lists runs throughout the history of art and literature. We do not only see it at work in ancient bestiaries, the celestial hosts of angels or the naturalist collections of the 16th century. We also find it more obliquely from Homer to Joyce, from the treasures of Gothic cathedrals to the fantastic landscapes of Bosch and cabinets of curiosities, until we get to Andy Warhol and Arman in the 20th century. In this 5-colour illustrated edition, Umberto Eco reflects on how the idea of catalogues has changed over the centuries and how, from one period to another, it has expressed the spirit of the times. His essay is accompanied by a literary anthology and a wide selection of works of art illustrating and analysing the texts presented. This new illustrated essay is a companion volume to On Beauty (2004) and On Ugliness (2007).
"Unimaginable but commonplace shares of TIME." "Globalization?"

1771 Swedish chemist discovers O2.

1825 First passenger rail.

1660 A world inhabited by spirits and demons.

"...where universities taught astrology and imperial courts practiced it, and where..."

If you wanted to understand a natural phenomenon you went, not to a laboratory, but to a library.

England

Nationalism, Liberalism, Modern Science

Nigel Calder, Timescale

1760 CA gold rush

1851 Coal-to-rail - a more coal.

1869 USA trans-continental rail

1870 Pneumatic tires

1870 Wireless telegraphy

1905 E=mc²

1940 Radiactivity

1948 Machine guns
A Review of the Air Pollution Research Program of the Smoke and Fumes Committee of the American Petroleum Institute†

CHARLES A. JONES
Executive Secretary
Smoke and Fumes Committee of the API

The cooperative efforts of the oil industry during World War I led to the organization, in 1919, of the American Petroleum Institute. The problem of pollution was recognized almost immediately, and early efforts on pollution control were directed to the problems of pollution of navigable waters. The Division of Refining of the Institute was organized in 1929 and included a Committee on Disposal of Refinery Wastes. This committee recognized that air pollution would eventually become a major problem for the petroleum industry, but at that time few refineries were located in areas where pollution of the air was of great enough concern to require corrective measures.

Following World War II and the enormous growth in population and industry on the West Coast, public pressure to halt the smog that plagued Los Angeles mounted rapidly. The California legislature enacted a law authorizing the formation of county air pollution control districts. The oil industry was subject to mounting criticism as being the chief contributor to air pollution in the Los Angeles area. Various regulations were passed governing the emission of atmospheric pollutants, but none of these proved effective in eliminating the nuisance. Within the Western Oil and Gas Association, an organization was formed to investigate the nature and origin of air pollution in Southern California. This organization, still active, has contributed considerably to the basic knowledge of the air pollution problem in Los Angeles through sponsored research.

Formation of the Smoke and Fumes Committee

By 1951 it became apparent that the oil industry would continue to be blamed for the bulk of the air pollution, and it was also realized that the problem is not peculiar to the Los Angeles area but is of national importance. Although Los Angeles continues to get more than its share of the publicity, the same undesirable effects can and do occur in other parts of the country and the problem is of concern to the entire petroleum industry. At a meeting of the Division of Refining in November 1951, the Smoke and Fumes Committee was organized to set up a program to determine factually the causes and methods for control of objectionable atmospheric pollution resulting from the production, transportation, manufacture, and use of petroleum and its products. It was recognized that proper decisions with regard to the control of atmospheric pollutants could not be made without accurate, scientific information. It was also felt that such legislation be regarded as necessary in some instances, fundamental knowledge based on reliable research rather than on theory or hypothesis should be available to government organizations to avoid restrictive and uneconomic rulings of the type that had proved unnecessary in the past.

To carry out this program, research projects were established at several research centers where investigations were designed to determine the mechanisms leading to air pollution. A qualified scientist was selected from the oil industry to serve as a full-time Executive Secretary to administer the program. A group of experts from top-level research people was organized as a Technical Advisory Committee to guide the research program. Each research project was provided with a Project Advisory Committee composed of highly qualified industry scientists. These Project Advisory Committees maintain close contact with the research workers to offer suggestions to guide the project and to insure that results of the work are made available as promptly as possible.

The Smoke and Fumes Committee organization also includes a Publications Committee. Information resulting from research activities sponsored by the Smoke and Fumes Committee is distributed to other committees of
Smoke & Fumes

The oil industry used science, communications, and consumer psychology to shape the public debate over climate change and block action decades earlier than anyone suspected.

### Funding

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<tr>
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<td>Humble Oil</td>
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<td>Smoke and Fumes Committee</td>
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### Science

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<td>Consumer/Behavioral Psychology</td>
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<td>Franklin Institute</td>
<td>fi.edu</td>
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<td>International Meteorological Institute in Stockholm</td>
<td>imis.se</td>
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<td>Massachusetts Institute of Technology</td>
<td>mit.edu</td>
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<td>New York University</td>
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<td>Scripps Institute of Oceanography</td>
<td>sio.ucsd.edu</td>
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<td>Stanford Research Institute</td>
<td>stanford.edu</td>
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<td>Treadwell Laboratories</td>
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<td>University of California, Riverside</td>
<td>uc-riverside.edu</td>
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<td>Virginia Institute for Scientific Research</td>
<td>vissr.org</td>
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<td>Woods Hole Oceanographic Institution</td>
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### People

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<td>A.C. Daughtry</td>
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<td>A.J. Haagen-Smit</td>
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### Project Numbers

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Smoke&Fumes.org
Naomi Oreskes, a professor of the history of science at Harvard and one of the study’s authors.

Kayana Szymczak for The New York Times

The current controversy over Exxon Mobil’s research began in 2015 with articles published by InsideClimate News and The Los Angeles Times that highlighted the company’s archived papers. The articles pointed out that the company had incorporated its research into its planning while publicly questioning the science of climate change and funding groups that denied serious climate risks. After those articles appeared, activists branded the company with the hashtag #ExxonKnew.

A number of state attorneys general, beginning with Eric T. Schneiderman of New York, began investigating the company over whether it misled shareholders and consumers about the risks of climate change and the
Exxon Misled the Public on Climate Change, Study Says

By John Schwartz
Aug. 23, 2017

An ExxonMobil refinery in Billings, Mont., in 2016. A new paper by two Harvard researchers who reviewed nearly 760 documents representing the company’s research and public statements found that the company largely misled the public on the science explaining climate change.

"Exxon Misled Public on Climate Change"
The Hotlist of Climate-change Deniers

Exxon: The Road Not Taken

Exxon Sowed Doubt About Climate Science for Decades by Stressing Uncertainty

Collaborating with the Bush-Cheney White House, Exxon turned ordinary scientific uncertainties into weapons of mass confusion.

BY DAVID HASEMeyer AND JOHN H. CUSHMAN JR

As he wrapped up nine years as the federal government's chief scientist for global warming research, Michael MacCracken lashed out at ExxonMobil for opposing the advance of climate science.

His own great-grandfather, he told the Exxon board, had been John D. Rockefeller's legal counsel a century earlier. "What I rather imagine he would say is that you are on the wrong side of History, and you need to find a way to change your position," he wrote.

Addressed to chairman Lee Raymond on the letterhead of the United States Global Change Research Program, his September 2002 letter was not just forceful, but unusually personal.

He wrote in the opening days of what became Bush-Cheney.

Screen Shot 2018-04-19 at 4.13.11 PM
insideclimatenews.com
THANK YOU FOR YOUR INTEREST IN THIS SUBJECT.
CLIMATE CHANGE
AND PRESIDENT OBAMA’S ACTION PLAN

President Obama has taken a bold step in addressing climate change. By committing to reduce carbon emissions, President Obama is demonstrating leadership in tackling one of the greatest challenges of our time.

THE CLEAN POWER PLAN

The Clean Power Plan sets achievable standards to reduce carbon dioxide emissions by 32 percent from 2005.
Surfacing

Surfacing is an interactive project by Liz Lazer and Sharon Shineman. The project is designed and programmed by Liz Lazer. The interactive design was created by Liz Lazer and Andreas Farley. Undersea fiber optic cables are critical infrastructures that support our global network society. They carry 99% of all transoceanic digital communications, including phone calls, text messages, email, websites, digital images and video, and even some television. It is the cable systems, not satellites, that transport most of the Internet around the world. In Surfacing, you are a signal traveling across the undersea network. You begin on the coast, carried ashore by underwater cable. From your landing point, you can traverse the Pacific Ocean by hopping between network nodes. You might surface at cable stations where signal traffic is monitored, on remote islands that were once network hubs, and aboard giant ships that lay submarine systems. In the process, narratives about the history of the cable network, the companies that construct it, and the ecologies that it runs through will orient you in your journey.
Aerial View Maps (Plans)

"this technique of visuality, characteristic of modern cartography + photography, as well as urban planning, has a significant impact on the perception + subsequent relation to space."

Corner, "The Agency of Mapping" Notes taken from section discussing Jean Baudrillard (p. 222)

Hyper-Real

Making space territory through acts of bounding and making VISIBLE

... it is the map that precedes the territory

Brasilia Masterplan sketch, Luicio Costa, 1957.
Floodplain Maps

1. Hazard Map
   intensity of floods + their associated exceedence probability

2. Vulnerability Map
   illustrate the consequences of floods on economy, society, natural environment

3. Risk Map
   show the spatial distribution of risk natural disasters
   
   \[
   \text{risk} = \text{probability} \times \text{consequences}
   \]

---

**Deterministic**
- 2D: finite element model
- + historical flood event
- = 1-in-100 year flood map (GIS)

**Probabilistic**
- construct flood inundation model with sensitivity analysis using historical data
- + behavioral models to simulate hydrological input

---

Flood Maps

Same coastline, different flood levels across a state border
Base flood elevations—the likely maximum flood height during a "high-hazard" flood—in Alabama and Mississippi

Age of effective date for FEMA flood maps

Max Mission 180524
How to Read a Section Drawing
How I Talk to My Daughter About Climate Change

As a reporter covering the environment, I'm all too aware of what the next 50 years could hold. As a 9-year-old, she's not—and for now, she wants to stay that way.

She doesn't want to know about climate change. Not from me, at least. Not yet.

Climate change has been part of my professional life for well over a decade, and part of my personal life for even longer. While I don't have any illusions that climate change can be averted by individual actions alone, I spent 15 years living off the electrical grid, and for both financial and environmental reasons my family still lives relatively simply. My husband and I deliberated for years about whether to have a child at all, partly because parenting in an affluent society is, shall we say, a carbon-intensive activity, and partly because we knew that future generations will probably have to contend with the consequences of a severely disrupted climate. While my personal ambivalence about parenting is long gone, I understand it in others, and I still worry about what lies ahead for my daughter.

My own responses to climate change have, inevitably, affected my daughter. When we lived off the grid, she got so used to explaining to her friends how our composting toilet worked that when she was five, and we moved into a house with a flush toilet, I overheard her showing friends how to push the handle. (They sweetly assured her that they had it sorted.) She knows that her father and I spend money pretty carefully, just like we try to use water and food and paper and power carefully, and while she makes fun of our habits, many of them have become hers, too.

But I don't need to bring up climate change in order to explain why it's a good idea to save a little water—and in general, I don't. As a parent, I approach the subject of climate change much like I approach the subject of sex: While I answer all questions, without hesitation and in full, I make sure not to answer more questions than I'm asked.
My daughter hears the phrases “global warming” and “climate change” from others, and she’s asked me what they mean. A kind of pollution, I tell her, that a lot of people are working on fixing. A problem that I’m trying to help other people work out. That satisfies her curiosity, for now. She’s heard her classmates talking about bigger wildfires and rising seas; she’s heard adults joke darkly about “the end of the world,” and it scares her. When she tells me about her fears, I don’t deny that many of the effects of climate change are scary, but I remind her that people say silly things when they’re scared, even adults. I tell her that the world isn’t going anywhere.

When are kids ready—both intellectually and emotionally—to learn about an abstract, global problem that may affect their future in very tangible, often disturbing ways? And what, exactly, do we want kids to learn from their first lessons about climate change? When we explain to elementary-school students why the sea ice is melting and polar bears are starving, are we truly satisfying their curiosity—or are we just sharing our own burdens of worry and responsibility?

David Sobel, an environmental educator, spent many years collecting neighborhood maps drawn by children in the U.S., England, and the Caribbean. These hundreds of maps, he reports, show a clear pattern: Kids between the ages of 4 and 7 put their homes at the center of their maps, often dominating the page. Kids ages 8 to 11 move their homes to the margins, focusing instead on what Sobel calls the “explorable landscape”—woods, neighborhoods, and other spaces that are within reach, but yet unknown. Kids 12 to 15 draw maps that are larger in scope and more abstract, but still anchored in familiar, often social places. “At each of these stages, children desire immersion, solitude, and interaction in a close, knowable world,” Sobel writes. As a parent, I’ve learned that kids usually tell us, or show us, when they’re ready to expand that world. When my daughter is ready to set out into the unknown territory of climate change, I trust she’ll let me know.

During our recent middle-school visit, my daughter and I found a hallway nook where she could read. The kids in the classroom I visited were three and four years older than she is, and they were studying the causes and effects of a recent nearby wildfire—a huge, drought-fueled fire that had choked the town with smoke for weeks, and forced some students to evacuate their homes. With the help of their teacher and a local arts grant, they were making a short film about the fire, and in the spring they would talk with students in Hawaii and Alaska who were at work on similar projects. As I talked to them about my own work, they squirmed, and laughed, and tipped their chairs at risky angles, and every so often they looked serious, because climate change is a serious thing. But they could barely contain their questions. In the years between my daughter’s age and theirs, climate change had become part of their explorable landscape—and they were ready to face it.
IPCC vs NIPCC

Who the Heck Are They?

IPCC

INTERNATIONAL PANEL ON CLIMATE CHANGE

= J31 QUALIFIED, INDEPENDENT SCIENTISTS, PUBLISHING Peer-REVIEWED RESEARCH

"CLIMATE CHANGE IS CAUSED BY US AND WILL BE BAD."

NIPCC

"NOT THE IPCC"

35 PEOPLE, PAID BY THE FOSSIL FUEL INDUSTRY TO SAY WHATSOEVER THEY THINK WILL CAUSE DOUBT AND HANCTION

"CLIMATE CHANGE IS A MYTH! OOH LOOK! A PENGUIN!"
This drawing illustrates Diplo’s approach to training and research on climate change.

Creative Commons by DiploFoundation
Climate
IN A CAGE

Climate will soon be "in a cage" at a remarkable Shell Agricultural Laboratory—"shored to order" in special rooms. Food, in more abundant supply, is in sight.

Shell Research explores hidden worlds—searches inside petroleum molecules for materials to match the soil, destroy pests, lighten farm labor...to bring the farmer a better return, and the rest of us more and better food.

Highly successful, Shell's program now expands to even greater importance, with the opening, in January, of the Shell Agricultural Laboratory. It will be a research institution in which the scientific apparatus of petroleum research will be located on a 100-acre farm. Here, new methods of soil enrichment and soil modification will be scientifically checked against results and costs...pests will be greatly reduced to lose their special powers...a steady flow of new chemical compounds from Shell's research laboratories will be tested for their possible benefits to agriculture.

Shell's farm was chosen for soil, water, climate by a committee of leading agricultural economists. It represents a "typical" of North American soil and weather. And where the actual weather falls short, new steps in weather modification will be a matter of routine. Rain falls, where weather is "dry"—humidity and temperature controlled.

During months, Shell scientists said, one room may represent a Florida cotton field, another a Canadian wheat field, and a third a New Jersey strawberry patch...

The new Shell Agricultural Laboratory is a logical extension of other Shell Research achievements benefiting the farmer. Vast quantities of Shell X12, have been produced from petroleum to match the soil with natural...this in turn to improve yield and quality...to protect plants...to control weeds...to protect crops from pests above ground...a new pesticide to safeguard farm tools and machinery...as well as fuel, farm and household

And the new Agricultural Laboratory earns Shell's program a step further. From its "inauguration..." look all other research for the farmer, will come to a more and better level.

Look in Shell Research for more gasoline and many more...Shell's wartime leadership in petroleum research and technology is your assurance of the finest farm and household service ever sold by your Shell Dealer. He is ready to serve you.
Question

How are the signs of anthropogenic sea level rise interpreted in science and society?

Books v Articles

pay more attention to narrative and imagination

standardized /quantitative

FRAME

The Big Data of Ice, Rocks, Soils, and Sediments
Inside the material archives of climate science
Shannon Mattern

For more on the concept of the Earth as an Archive, visit this article on placesjournal.org.

NARRATIVE

Framing

1. Geological process (not social)
   - Earth history, Earth as an Archive
2. Episodic risk events

Reductionism

Negligence of social + cultural dimensions of climate change, compared to scientific models

Predictive, natural science instead of imaginative, humanistic accounts of social life + visions of the future
Sea-Level Rise in Public Science Writing: History, Science and Reductionism

Susanna Liström
Division of History of Science, Technology and Environment, KTH Royal Institute of Technology, Stockholm, Sweden

ABSTRACT
Sea-level rise is a dramatic effect of climate change, with profound implications for societies around the world. In the past few years, a rush of literary non-fiction books have appeared that aim to explain the threat of rising seas to the public. This paper critiques how sea-level rise is framed in many of these books, on two accounts. First, anthropogenic sea-level change is frequently framed by accounts of natural variations of sea level in earth history, focusing on geological rather than societal processes. Second, single and sudden floods are often used to exemplify sea-level rise in ways that draw attention away from incremental environmental change in favour of fast-paced but de-contextualised events. The paper argues that both these frames de-politicise sea-level rise and may steer public understanding and discussion away from relevant social, cultural, and ethical considerations. As examples of climate reductionism, these depictions may obstruct rather than facilitate appropriate negotiations in response to predicted sea-level rise.

Introduction
Sea-level rise is a dramatic effect of contemporary climate change (Church et al., 2013; Levermann et al., 2013). Coastal societies around the world are predicted to be—and some already are—impacted in manifold ways (Hamlington et al., 2014; Nicholls & Cazenave, 2010). In some places people will be forced to move, while in others sea defences may be built. Areas far from the coast will be affected by migration, impacts on food production, and policy changes (e.g. Brown, 2008; Smajgl et al., 2013). Effects of rising seas involve an array of social, political, and ethical aspects, on levels ranging from local to global (Allison & Bassett, 2013; Byravan & Rajan, 2010). As with climate change more broadly, while the industrialised world is primarily responsible, poor communities and less developed parts of the world are most vulnerable (e.g. Hense & Paulsson, 2013; Nicholls & Cazenave, 2010).

Knowledge about an interconnected relationship between human societies and the sea is the result of recent discoveries. Rewind a few decades, and ideas about the ocean were different. In the Western world, a reference point can be located in the mid-nineteenth century. In her widely successful book, The sea around us (1856), Rachel Carson presents the contemporary observation of rising seas around North American coasts:

"We live in an age of rising seas. Along all the coasts of the United States a continuing rise of sea level has been perceptible on the tide gauges of the Coast and Geodetic Survey since 1900. [...] These records of the tide gauges do not include the transitions advanced and retreats of the water caused by winds and storms, but signify a steady, continuing advance of the sea upon the land." (p. 97)

Carson recognizes that the pace is unusual:

"This evidence of a rising sea is an interesting and even an exciting thing because it is rare that, in the short span of human life, we can actually observe and measure the progress of one of the great earth movements. (p. 97)

Despite the fact that Carson—author of Silent spring (1963), a foundational text of modern environmentalism published only a decade later—was perhaps better poised than anyone to consider the possibility that the remarkable change in sea levels could be related to human activities, that scenario is unthinkable, even to her. The possible explanations she lists do not include human impact, nor any relation to the changes in climate that were also well recorded at the time. Instead, Carson separates the realm of the oceans as distinctly different from that of land, stating that humans "cannot control or change the ocean as, in his brief tenancy on earth, he has subdued and plundered the continents" (p. 15).

By now, this understanding has changed profoundly. We now know that sea levels are rising globally, though with considerable regional variations and uncertainties (Slangen, Carson, et al., 2013), and that predicted changes are indeed unusually fast, caused primarily by anthropogenic impacts on the climate (Lyu, Zhang, Church, Slangen, & Hu, 2014; Slangen, Church, Zhang, & Menseleas, 2014). To understand this change of ideas, this paper examines how the science of anthropogenic sea-level rise is interpreted across the realms of science and society. Understanding how knowledge about rising seas is turned into a public message can help to understand how it translates—or fails to translate—into relevant items on political agendas (cf. Cove & Kain, 2013; Yusuf, Neill, St John III, Ais & Mahar, 2013). How the science is framed may affect what kind of political action is seen as appropriate, relevant, and necessary.

In the past few years, a rush of American non-fiction books have appeared that set out to explain and communicate the threat of sea-level rise to the public (Englander, 2012; Fagan, 2013; Gillis, 2012; Gornitz, 2013; Janin & Mandla, 2012; Pillen & Young, 2009; Ward, 2013). Many others have appeared that address related topics against the background of predicted sea-level rise (e.g. Beal, 2014; Davis, 2011; Hobbs, 2012; Parker, 2010; Sargent, 2009). This paper studies how sea-level rise is portrayed in this genre of public science writing. It identifies two important themes that recur in many of the books, and uses frame analysis and ecotopian theory to analyse them. It then exemplifies some of the implications through close reading of a few selected examples. Finally, the paper argues that these recurring themes de-politicize predicted anthropogenic sea-level rise in public communication and imagination and may steer discussions away from relevant societal, cultural and ethical considerations, thereby obstructing rather than facilitating appropriate negotiations in response to predicted sea-level rise.

Public science writing and non-fiction literature
Non-fiction books are on the rise, in popularity as well as reputation (Nixon, 2012). Environmental change is a frequent topic of such books, and seems to contribute to their recent influx. Environmental non-fiction thus appears as an increasingly relevant genre where complex environmental science is translated into an informative and usually also normative message to the concerned public.

Placed at the intersection of science and public imaginations, environmental non-fiction books reflect the interests of this paper by combining three different elements. First, they claim to portray sound science. The books studied in this paper are in fact written by scientists themselves. Second, the book format places more focus on narrative—or imagination—than shorter texts, such as news reports. The book length means that a story needs to be created and sustained, with perspectives chosen and elaborated, and a framing in terms of a beginning and an end. Books both require and enable more detail than shorter texts, as well as a slower pace, allowing for narratives that could not fit more economical formats. To this end, non-fiction books may better reflect a nuanced picture of the ocean's past and its future.
"This book is a single-minded attempt
by one fallible but tolerably well-informed person
to weave new cloth
From other people's yarns"

— avoid the "ifs and buts" that make knowledge opaque

— "The exploration of time on Earth is beginning in earnest only now"

— Chronology vs. Chronography

— Narrative of the Timeline
  "A provisional scientific analog of old creation myths"
  "Cause/Effect is up to the reader"
  "Science has done more than to fill in details of a story;
   it has set new standards of objectivity in
   the description of the past" (117)
  "Scientific measurement + discovery
   curb the freedom of self-expression in history"
I would like to proceed by placing metaphorical reliance on a much maligned sensory system in feminist discourse: vision. Vision can be good for avoiding binary oppositions. I would like to insist on the embodied nature of all vision and so reclaim the sensory system that has been used to signify a leap out of the marked body and into a conquering gaze from nowhere. This is the gaze that mythically inscribes all the marked bodies, that makes the unmarked category claim the power to see and not be seen, to represent while escaping representation. This gaze signifies the unmarked positions of Man and White, one of the many nasty tones of the word "objectivity" to feminist ears in scientific and technological, late-industrial, militarized, racist, and male-dominant societies, that is, here, in the belly of the monster, in the United States in the late 1980s. I would like a doctrine of embodied objectivity that accommodates paradoxical and critical feminist science projects: Feminist objectivity means quite simply situated knowledges.

The eyes have been used to signify a perverse capacity—honed to perfection in the history of science tied to militarism, capitalism, colonialism, and male supremacy—to distance the knowing subject from everybody and everything in the interests of unfettered power. The instruments of visualization in multinationalist, postmodernist culture have compounded these meanings of disembodiment. The visualizing technologies are without apparent limit. The eye of any ordinary primate like us can be endlessly enhanced by sonography systems, magnetic reasonance imaging, artificial intelligence-linked graphic manipulation systems, scanning electron microscopes, computed tomography scanners, color-enhancement techniques, satellite surveillance systems, home and office video display terminals, cameras for every purpose from filming the mucous membrane lining the gut cavity of a marine worm living in the vent gases on a fault between continental plates to mapping a planetary hemisphere elsewhere in the solar system. Vision in this technological feast becomes unregulated gluttony; all seems not just mythically about the god trick of seeing everything from nowhere, but to have put the myth into ordinary practice. And like the god trick, this eye fucks the world to make techno-monsters. Zoe Sofoulis calls this the cannibaleye of masculinist extra-terrestrial projects for excremental second birthing.
Evolution of recognition systems

UNICELLULAR → MULTICELLULAR → COELOMATE → VERTEBRATE

PROTOZOA
- graft rejection
- "non self-recognition"
- phagocytosis
- enzymes

BACTERIA
- graft memory
- agglutinins

ECHINOderms
- lymphocytic foci
- antibody response

TUCINATES
- stem cells, MHC
- lymphocytes

BONY FISHES
- T-B cooperation
- Ig-T cells

CARTILAGINOUS FISHES
- spleen, thymus, Ig-T cells
- plasma cells, IgM, IgG

AMPHIBIANS
- lymph nodes, Ig-T cells
- MLR, T cells
- IgM, IgG

ARTHROPODS
- complement
- Ig-T cells, IgM, IgG

REPTILES
- specialised cells
- opsonins
- lysis
- IgM, IgG

MOLLUSCS
- no graft rejection
- Ig-T cells, IgM, IgG

BIRDS
- Dura
- Ig-T cells, IgM, IgG

MAMMALS
- Ig-T cells
- IgM, IgG, IgA, IgE, IgD

Haraway, Cyborgs, Plate 11.
SURVIVING the CONVERGING CATASTROPHES
of the TWENTY-FIRST CENTURY
JAMES HOWARD KUNSTLER
AUTHOR OF THE GEOGRAPHY OF NOWHERE

The LONG EMERGENCY

LOVE AND APOCALYPSE
Externalize Your Inner Apocalypse
with Creative Writing
Ellen Briana Szabo

Future Shock
by
Alvin Toffler

The Economics of Climate Change
The Stern Review
MICHAEL STERN

SLOW VIOLENCE
AND THE
ENVIRONMENTALISM
OF THE POOR
ROB NIXON

The Case for Mars
The Plan to Settle the Red Planet and Why We Must
ROBERT ZUBRIN
Global Warming causing 300,000 deaths per year
Malnutrition and spreading diseases...Report assesses the human impact on climate change

300,000 PEOPLE IN THE HORN OF AFRICA, IN BANGLADESH, INDIA, VIETNAM...

300,000 DEATHS, ACCORDING TO THE UN.

OBVIOUSLY, ELSEWHERE IN THE WORLD THERE ARE ALREADY VICTIMS OF CLIMATE CHANGE.
As we have seen, it takes a huge shock or a major catastrophe to make us take action.

Sixteen out of twenty of the planet's biggest metropolises are on the sea. More than half the world's population lives near a coast.

We don't know how to approach this problem. And so, as we often do when we don't know what to do about a problem, we talk about something else.
AND WE DON'T NOTICE A THING.
...WE DON'T NOTICE A THING.
THE CLIMATIC CRISIS IS STILL FAR OFF; TOO ABSTRACT TO SHIFT OUR PRIORITIES.

BUT NATURE'S CLOCK IS NOT THE SAME AS OURS.

THE DESERTS EXPANDING; GLACIERS MELTING; SEAS RISING... THESE PROCESSES HAPPEN ACROSS DECADES.

IN OUR DELUSION WE FEEL THE URGENCY TO ACT... WITHOUT BELIEVING WE HAVE THE MEANS TO DO SO.

WE KNOW, BUT WE DON'T MAKE CHANGES.

OUR INITIAL IGNORANCE HAS BEEN REPLACED BY...
...some sort of split personality.

Page left: We know we're heading for a wall.

Page right: We go on living in Fantasyland...

...where there's no contradiction between our material desires and preserving the planet.
Whether we like it or not, there are greenhouse gas emissions in every part of our lives.

Our way of life and CO₂ emissions are inextricably linked.

From our food, our homes, our cars, our pastimes.

All our activities are part of the climate crisis, all our wants...

Every product we purchase...

The way we eat, get around, keep warm.

Eradicating so much CO₂ from our way of life won't be easy.
We live in a world of fictions.

I believe in America.

A fable, disconnected from reality.

The material prosperity we've enjoyed over the last two centuries has been dependent on abundant and cheap energy...

...the accumulation of consumer goods...

...and the destruction of nature.
IN 1972, THE UNITED STATES PASSED THE MOST STRINGENT POLLUTION-CONTROL REGULATIONS IN THE WORLD, AND CREATED AN environmental protection agency TO OVERSEE COMPLIANCE.

THE EPA SET LIMITS ON INDUSTRIAL AND AUTOMOTIVE EMISSIONS OF VARIOUS KINDS.

TOXIC
SUBSTANCES ARE THOSE THAT ARE JUST Plain POISON. AT LOW DOSES, THEY ARE FATAL TO HUMANS.

HAZARDOUS
WASTES ARE THOSE THAT MAY BURN, D Dissolve THINGS, EXPLODE, IRRITATE, OR CAUSE ALLERGIC REACTIONS.

CARCINOGENS
INCREASE THE RISK OF CANCER. THESE INCLUDE NOT ONLY MANY CHEMICALS BUT ALSO ANYTHING THAT EMITS RADIATION.

THE CARTOON GUIDE TO THE ENVIRONMENT
LARRY GONICK & ALICE OUTWATER

Max Moinian 18/05/24
Do you think that the Ozone Hole is a grunge rock club? Or that the Food Web is an on-line restaurant guide? Or that the Green Revolution happened in Greenland? Then you need The Cartoon Guide to the Environment to put you on the road to environmental literacy. The Cartoon Guide to the Environment covers the main topics of environmental science: chemical cycles, life communities, food webs, agriculture, human population growth, sources of energy and raw materials, waste disposal and recycling, cities, pollution, deforestation, ozone depletion, and global warming—and puts them in the context of ecology, with discussions of population dynamics, thermodynamics, and the behavior of complex systems.
Dan Bloom (coined the term):
"Cli-fi" came to me after I read the IPCC report and was thinking of ways to raise awareness of novels and movies about climate change issues.
Novelists today don't care much about such intellectual distinctions. Using words to tell a good story is all that matters. *Genre is only important for organizing library shelves. Truly. Story is everything.*

"The public realm persists as a fragile anachronism and potential threat to the hubris of transcendental capitalism.

Where no collective imaginary exists, the arguments for any kind of coordinating role for the state lose their political legitimacy, so that society is little more than an amalgam of individuals linked by fear and self interest."

*INTRODUCTION BY MARTIN AMIS*

THE DROWNED WORLD

A NOVEL

J.G. BALLARD

Published by Berkley Books, 1962
"Pure data. You don't believe data—you test data." He grimaced. "If I could put my finger on the moment we genuinely fucked ourselves, it was the moment we decided that data was something you could use words like believe or disbelieve around."

"Some people had to bleed so other people could drink. Simple as that."
Butler. Published by Four Walls Eight Windows, 1993

Ballard. Published by Berkley Books, 1964

Mitchell. Published by Random House Publishing House, 2004

Robinson. Published by Harper Collins, 2004

Butler. Published by Four Walls Eight Windows, 1993

Ballard. Published by Berkley Books, 1964

Mitchell. Published by Random House Publishing House, 2004

Robinson. Published by Harper Collins, 2004
CLI FI

Finitude

Barbara Kingsolver
Flight Behavior

A Novel

Ian McEwan
SOLAR

MaddAddam
Margaret Atwood
THE LAMENTATIONS OF ZENO

ILIJA TROJANOW

"The best thing one could say of an author: he matters to me."
CLI FI

Stormteller
David Thorpe

Annihilation
Jeff VanderMeer

The Heatstroke Line
Edward L. Rubin

The End We Start From
Megan Hunter
"Only this time the threat doesn't come from aliens or giant angry lizards or asteroids plummeting toward the planet. Instead, global warming threatens our big blue marble."

**Apocalypse**

frame is emotionally charged complex, long-term issues culminate in crisis conflicts between recognizable, opposed groups

**Hero / Villain**

similar framing as other mediums and news stories
"I remembered this book I once read, *The Coming Global Superstorm*. And it just hit me. That's my movie. I don't need a monster or a villain. Just the weather."

"The movie is fiction, of course, and it's important we separate fact from fiction. But it raises an extremely serious issue. We do face a climate crisis. It should be seen as a genuine global emergency."
Director: trying to call attention to "how big business tries to both use and control nature, since it's not their interest to change" ethics of geo-engineering?
2031

"CLIMATE CHANGE HAS MADE THE PLANET UNINHABITABLE,

AND THE WORLD INSIDE THE TRAIN IS FAR FROM EQUAL

IT HAS BEEN CLAIMED THAT CW7 IS THE ANSWER TO GLOBAL WARMING

A REVOLUTIONARY SOLUTION.

soon after dispersing CW-7 the world froze

all life became extinct…

THE PRECIOUS FEW WHO BOARDED THE RATTLING ARK ARE HUMANITY’S LAST SURVIVORS"
'I figure there's a 40% chance of fog, and a 10% chance we know what we're talking about.'
CLIMATE CHANGE CONFERENCE

NO ONE WILL TAKE ME SERIOUSLY IN THESE SHOES.

CLIMATE CHANGE MEANS YOU MEAN CARIEST.

CLIMATE SCIENCE SENIORS

YOU DON'T HAVE TO BE RIGHT... JUST CREATE DOUBT!

I AM WORRIED ABOUT THE EFFECTS OF CLIMATE CHANGE ON REPTILES.

BURN MORE COAL!
YOU THINK GLOBAL WARMING IS FAKE?
PLEASE TELL ME HOW YOU GET ALL YOUR "FACTS" FROM POLITICIANS AND OIL COMPANIES

Exactly predict sea level rise in 200 years
Can't tell me what the weather will be tomorrow.

THE SEA LEVEL IS RISING?
I THINK NOT. I THINK IT IS ALL A LIBERAL PLOT.
GLOBAL WARMING
AIN'T NOBODY GOT TIME FOR THAT

WHEN YOU'RE ENJOYING THE WARM WEATHER IN DECEMBER

BUT DEEP DOWN YOU KNOW IT'S BECAUSE OF GLOBAL WARMING

GLOBAL WARMING
MY ASS

GLOBAL WARMING
"WARMING"

GLOBAL WARMING
I'M GETTING THE FUCK OUTTA HERE

USES PRIVATE JET 6 TIMES IN 6 WEEKS
LECTURES EVERYONE ABOUT GLOBAL WARMING

Y'ALL GOT ANYMORE OF THAT GLOBAL WARMING
This mage of the continental United States at night is a composite assembled from data acquired by the Suomi NPP satellite in April and October 2012. The image was made possible by the satellite's "day-night band" of the Visible Infrared Imaging Radiometer Suite (VIIRS), which detects light in a range of wavelengths from green to near-infrared and uses filtering techniques to observe dim signals such as city lights, gas flares, auroras, wildfires and reflected moonlight.
A cloud can be beautiful, terrible, or both—the embodiment of the sublime. In the photographer Camille Seaman’s cloudscapes, we see a power larger than ourselves. But, as smokestacks and airplanes create new classifications of clouds, it’s difficult to not also see humankind’s self-portrait: potent, defiant, unforgiving. Click the link in our bio for more of her work.

Photography by Camille Seaman.
How to Create a Photo Manipulation of a Flooded City Scene

by Andrew Gardner  20 May 2011

"How to Create a Photo Manipulation of a Flooded Scene" design tutorial.
After Hurricane Sandy, many fake images went viral.

Mike Hollingshead, a stormchaser/photographer in the midwest, admits that many of his photos posted on his website end up being doctored and circulated.
Future Earth Catalog

URBAN DICTIONARY
Lexicon of Climate Change Literature

Concepts, terms, and buzzwords to know.
**FUNCTION**

The *FUTURE EARTH CATALOG* function as a glossary of terms, buzzwords, and theories to know from the *climate science* and *urban resilience* dialogues today.

A go to guide for anyone who wishes to join the conversation. There's no such thing as a stupid question, but we should still try to ask the right ones.

---

**PURPOSE**

To bring multiple, perhaps conflicting definitions in one place in order to take a position. *Because when do we ever question what the dictionary says?*

AND to set a debate or consensus on concepts and reveal multiple ways of knowing.

To break conventional knowledge systems with a format that allows individuals to question, converse, and contribute.
**Myth**

A story about mystical beings, powers or events otherwise impossible to perform in reality that only exist in imagination.

*The female orgasm that's the myth.*

by FAT_COBRA October 02, 2004

---

**Myth**

A highly important person who mysteriously vanishes on a regular basis - usually during work hours.

Has anyone seen Payney? He is such a myth.

#myth #work #mystery #phantom #disappear

by jonny gee April 15, 2009

---

**Myth**

1. n. A real-time strategy game created by Bungie, the same fine folks who brought us Halo and the Marathon series. While Bungie no longer supports the game, it still has a thriving, tho small, community, which can always be found on Playmyth.net

---

**Mythbusted**

Some of the greatest achievements are made by people too stupid to know they are impossible. Impossible is just a big word thrown
Retreat
Higher Ground
Property Rights
Colonize Mars
Polar Bears
Floodplain
Recover
Land Use
Resilience
Adaptation
Preparedness
Environmentalism
Renewables
Solar Panels
Wind Turbines
Hydroelectric
Tidal Energy
Consumerism
Capitalism
Industrialization
Globalization
Biodiversity
Agriculture
Deforestation
Natural Resources
Ecosystems
Glaciers
Renewables
Solar Panels
Wind Turbines
Hydroelectric
Tidal Energy
Consumerism
Capitalism
Industrialization
Globalization
Biodiversity
Agriculture
Deforestation
Natural Resources
Ecosystems
Glaciers
Renewables
Solar Panels
Wind Turbines
Hydroelectric
Tidal Energy
Consumerism
Capitalism
Industrialization
Globalization
Biodiversity
Agriculture
Deforestation
Natural Resources
Ecosystems
Glaciers
Climate
Weather
Tsunami
Global Warming
Climate Change
Greenhouse Gases
Carboxy Footprint
CO₂
Fossil Fuels
Sound Science
Fracking
Coal
Oil
Grads
Deforestation
Extraction
Carbon
Global
Footprint
CO₂
Fossil
Fuels
Sound
Science
Fracking
Coal
Oil
Natural Resources
Ecosystems
Glaciers
Renewables
Solar Panels
Wind Turbines
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Consumerism
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Glaciers
Climate
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Global Warming
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Fossil
Fuels
Sound
Science
Fracking
Coal
Oil
Natural Resources
Ecosystems
Glaciers
Climate
Weather
Tsunami
Climate
Weather
Tsunami
Conservation v Preservation

Utilitarianism

Maximize benefits and rely on experts (53)
Science and economics to value, measure, compare, predict, influence policy options

Criticism:
1. I can’t anticipate / control all of the consequence of your actions
2. Quantifying qualitative things (with money)
3. Sometimes the ethically correct move is to act on principle, not consequence (when a cost-benefit analysis doesn’t cover it)

“The Precautionary Principle”
When you don’t know everything, lean towards the options that try to reduce risk
Ecosystem Services

The New York Times  http://nyt.me/1p6m66V

ENVIRONMENT | NYT NOW

Putting a Price Tag on Nature’s Defenses

JUNE 5, 2014
Carl Zimmer
MATTER

Free Rider Theory

Stewardship

Merriam Webster:
"the conducting, supervising, or managing of something; especially : the careful and responsible management of something entrusted to one’s care stewardship of natural resources"

"the job of supervising or taking care of something, such as an organization or property"

Religious (Christianity):
value nature for the resources it can provide to humans; treat nature with the appreciation, reverence and respect that are "due a gift from the creator.” (43)

Humans have dominion over the natural world but are not
"entitled to destroy or ruin it"
Pure Public Good

Deep Ecology

(De Naes, 207) Shallow is "committed to the fight against pollution and resource depletion."

An anthropocentric approach with the "primary objective of protecting the health and affluence of the people in developed countries."

"Deep is the underlying issues — what is causing pollution and resource depletion."

we need a radical change in people’s philosophical worldview: attitude of domination and infinite resources are the roots of ecological destruction

Ecofeminism

the idea that our society’s attitude of domination — of women and the natural environment, is the biggest problem
of science to comprehend this reality. Insofar as it does this, scientific claims are "true" and "objective," because they correspond to reality. On the other hand, human beings ("subjects") interpret the world, make judgments about it, perceive it, value it, and have feelings about it. These human factors are subjective because they depend on the human subject. Because they depend on human subjects, they should not be mistaken for objective "truths" about the real world.

In general terms, this distinction between objectivity and subjectivity has had significant implications for mainstream epistemology and ethics. Deep ecologists believe that the distinction has had a detrimental influence on both how we understand and on how we value nature.

Epistemologically, objective descriptions of nature can be measured, tested, verified, and the like. Subjective judgments about nature, on the other hand, are arbitrary, unpredictable, biased, and unverifiable. Objective descriptions can be rational and true. Subjective judgments cannot. In ethics, subjective judgments of value ("oughts") cannot be derived from objective descriptions of fact ("is").

To elaborate this distinction, philosophers in the seventeenth century relied on a contrast between the primary and the secondary qualities of physical objects. An object's primary qualities existed in the object and were taken to represent what the object truly and really was. Size, shape, mass, extension, and movement were understood as examples of an object's primary qualities. They existed in the object itself. On the other hand, secondary qualities were said to exist as a result of the interaction between an object and an observer. An object's color, texture, taste, and smell were secondary qualities in that they existed only insofar as there existed a perceiver who experienced them. Because secondary qualities depended on a perceiver, they were subjective and not really a part of the object itself.

Note how these distinctions and the value conclusions that flow from them depend greatly on a clear distinction between subject and object. When the human subject is viewed as essentially one with the natural world, as deep ecologists argue that it should be, the rationale for clinging to a strict distinction between objective and subjective, between real and perceived, and between fact and value is weakened. We can still make these distinctions and they can be useful for us, but they lose their metaphysical priority. The real world ceases to exist "out there," separate and apart from us. We exist in the real world. Our perceptions, judgments, and evaluations are as real as the abstract judgments of science. Just as important, these judgments and evaluations can be as rational, true, and objective as the judgments of science.
Non-Anthropocentrism

If we are one with nature, then the distinction between primary and secondary valuations is blurred, and we can justify arguments on behalf of the natural environment with more than just rational scientific fact.
Climate Change

IPCC:
Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the (UNFCCC) defines climate change as: a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes. See also Detection and Attribution.

Global Warming

Global Climate Disruption

... is a better term

“The phrase ‘global warming’ was something of a misnomer... it suggests that the phenomenon is something that is uniform around the world, that it’s all about temperature, and that it’s gradual.”

Holdren, Science Advisor to President Obama
1958
"Two scientists & Meteora, the goddess of weather explain how it’s created and warn about the global threat of climate change.”

CORRECT:

"Climate change as a result of global warming"

Climate Change is denialism:

“What we desperately need is an appropriate level of shock + anxiety concerning a specific ecological trauma – indeed, the ecological trauma of our age.”
Chronic v. Episodic Risk

the need to bridge shocks we experience with the stressors we cannot easily perceive

SOMETIMES YOU HAVE NO OTHER CHOICE THAN TO WATCH SOMETHING GRUESOME OCCUR. YOU DON'T HAVE THE OPTION OF CLOSING YOUR EYES BECAUSE IT HAPPENS FAST AND ENTERS YOUR MEMORY.

Media

how information is “framed” for the public

“key source of information about the tangible, everyday situations that are a necessary complement to abstract information so that people can generate collective action frames.”

Evades questions of responsibility:

bias towards SHOCKS creates distance between:

eventual victims AND those responsible

....we respond to urgency
evades perception, intangible scale
calls for systemic, radical change
“looming presence of an invisible yet far more real global climate”

“coherent, narrative units”
“false immediacy”
at a SPACE/TIME scale that people can relate to emotional (experiential, characters)
straightforward solutions
risk reflexive: public challenge the way information is packaged and delivered by government and organizations

The critical force of all this fervent intellectual activity is radically and systematically constrained by its cultural heritage and unreflexive idiom”

... “technical experts are given pole position to define agendas and impose bounding premises a priori on risk discourses.” (4)
works in part by robbing the powerless of the inclination or ability to develop their own interpretations of political issues. With active, mindful political participation, we weave reality and a place for ourselves within it.

"No science is immune to the infection of politics and the corruption of power."

Jacob Bronowski
For we have to ask ourselves, here and now,

do we wish to join that procession, or don’t we?

On what terms shall we join that procession?

Above all, where is it leading us.

the procession of educated men?

But, you will object, you have no time to think; you have your battles to fight, your rent to pay, your bazaars to organize. That excuse shall not serve you, Madam.

Think we must.

Let us never cease from thinking — what is this “civilization” in which we find ourselves? What are these ceremonies and why should we take part in them? What are these professions and why should we make money out of them? Where in short is it leading us, the procession of the sons of educated men?

THREE GUINEAS,

VIRGINIA WOOLF
But, of course, that view of infinite vision is an illusion, a god trick. I would like to suggest how our insisting metaphorically on the particularity and embodiment of all vision (although not necessarily organic embodiment and including technological mediation), and not giving in to the tempting myths of vision as a route to disembodiment and second-birthing allows us to construct a usable, but not an innocent, doctrine of objectivity. I want a feminist writing of the body that metaphorically emphasizes vision again, because we need to reclaim that sense to find our way through all the visualizing tricks and powers of modern sciences and technologies that have transformed the objectivity debates. We need to learn in our bodies, endowed with primate color and stereoscopic vision, how to attach the objective to our theoretical and political scanners in order to name where we are and are not, in dimensions of mental and physical space we hardly know how to name. So, not so perversely, objectivity turns out to be about particular and specific embodiment and definitely not about the false vision promising transcendence of all limits and responsibility. The moral is simple: only partial perspective promises objective vision. All Western cultural narratives about objectivity are allegories of the ideologies governing the relations of what we call mind and body, distance and responsibility. Feminist objectivity is about limited location and situated knowledge, not about transcendence and splitting of subject and object. It allows us to become answerable for what we learn how to see.
Risk Perception
Flood risk perception in lands “protected” by 100-year levees

Jessica Ludy · G. Matt Kondolf

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Abstract Under the US National Flood Insurance Program, lands behind levees certified as protecting against the 100-year flood are considered to be out of the officially recognized “floodplain.” However, such lands are still vulnerable to flooding that exceeds the design capacity of the levees—known as residual risk. In the Sacramento-San Joaquin Delta of California, we encounter the curious situation that lands below sea level are considered not “floodplain” and open to residential and commercial development because they are “protected” by levees. Residents are not informed that they are at risk from floods, because officially they are not in the floodplain. We surveyed residents of a recently constructed subdivision in Stockton, California, to assess their awareness of their risk of flooding. Median household income in the development was $80,000, 70% of respondents had a 4-year university degree or higher, and the development was ethnically mixed. Despite the levels of education and income, they did not understand the risk of being flooded. Given that literature shows informed individuals are more likely to take preventative measures than uninformed individuals, our results have important implications for flood policy. Climate-change-induced sea-level rise exacerbates the problems posed by increasing urbanization and aging infrastructure, increasing the threat of catastrophic flooding in the California Delta and in flood-prone areas worldwide.

Keywords Risk perception · Flood insurance · 100-year flood · Levee · Residual risk · Delta

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Weather v Climate

"Climate is the history of weather."
Diagram based on information in *A Vast Machine*, Paul N. Edwards
"If we had observations of the future, we obviously would trust them more than models, but unfortunately...

... observations of the future are not available at this time."

Tom Knutson and Robert Tuleya
CLIMATE SCIENCE:

Not a house of cards, but a tapestry, probably one of the most beautiful, sturdy and complex ever assembled. Of course there are a lot of holes in it, having holes is what weaving knots and nodes is about. But this tapestry is amazingly resilient because of the way it is woven—allowing data to be recalibrated by models and vice versa.
Spray cans and refrigerators damage the ozone layer
The next leap in our knowledge of ozone chemistry was in 1974, when Mario Molina and Sherwood Rowland published their widely noted Nature article on the threat to the ozone layer from chlorofluorocarbon (CFC) gases - "freons" - used in spray bottles, as the cooling medium in refrigerators and elsewhere and plastic foams. Molina and Rowland based their conclusions on two important contributions by other researchers:
- James Lovelock (England) had recently developed a highly sensitive device of measuring extremely low organic gas contents in the atmosphere, the electron capture detector. Using this he could now demonstrate that the exclusively man-made, chemically inert, CFC gases had already spread globally throughout the atmosphere.
- Richard Scolarski and Ralph Cicerone (USA) had shown that free chlorine atoms in the atmosphere can decompose ozone catalytically in similar ways as nitrogen oxides do.

Molina and Rowland realised that the chemically inert CFC could gradually be transported up to the ozone layer, there to be met by such intensive ultraviolet light that they would be separated into their constituents, notably chlorine atoms. They calculated that if human use of CFC gases was to continue at an unaltered rate the ozone layer would be depleted by many percent after some decades. Their prediction created an enormous attention.
What’s the use of having developed a science well enough to make predictions if, in the end, all we’re willing to do is stand around and wait for them to come true?

Sherwood Rowlands

Atmospheric chemist and nobel laureate, discovered that chlorofluorocarbons contribute to ozone depletion
3 Types of Models:

1. Simulation
2. Reanalysis
3. Data analysis

NOT models v. data

"Without models there are no data."

"The numbers don't speak for themselves."

"The IPCC brings controversy within consensus, capturing the full range of expert opinion."

A Vast Machine, Paul N. Edwards

"shimmering"

reverberation of data images
what we know about the past changes,
which can be perceived as messy science,

BUT
the images
"shimmer around a central line"
that confirms global warming

Unless you have been in a coma since 1988, you have certainly heard or read a story that goes something like this: Global warming is a myth. It's all model predictions, nothing but simulations. Before you believe it, wait for real data. "The climate-studies people always tend to overestimate their models," the physicist Freeman Dyson told an interviewer in April 2009. "They forget they are only models." In the countless political controversies over climate change, the debate often shakes out into a contest: models versus data.

This supposed contest is at best an illusion, at worst a deliberate deception—because "without models, there are no data." I am not talking about the difference between "raw" and "cooked" data. I mean this literally. Today, no collection of signals or observations—even from satellites, which can "see" the whole planet—becomes global in time and space without first passing through a series of data models.

Since both observing systems and data models evolve, global data also change. We have not one data image of the global climate, but many. The past, or rather what we can know about the past, changes. And it will keep right on changing. I call this reverberation of data images "shimmering." Global data images have proliferated, yet they have also converged. They shimmer around a central line, a trend that tells us that Earth has already warmed by about 0.75°C (1.3°F) since 1900.

Nor is there any such thing as a pure climate simulation. Yes, we get a lot of knowledge from simulation models. But this book will show you that the models we use to project the future of climate are not pure theories, ungrounded in observation. Instead, they are filled with data—data that bind the models to measurable realities. Does that guarantee that the models are correct? Of course not. There is still a lot wrong with climate models, and many of the problems may never be solved. But the idea that you can avoid those problems by waiting for (model-independent) data..."
We will trust the data if we understand its limits better.
A Selected Timeline of U.S. Energy

This history of energy in the United States is deeply intertwined with technology, economic policies, consumer demands, and worldwide events. Sources of energy both compete with, and complement, each other depending on the prevailing circumstances. This is a brief outline of key events and trends marking development of various sources of energy. Use this as a guide. More comprehensive histories are available for such of these categories.

**Coal**

1750s: Coal mining began near Danville, Illinois. Horse-drawn plows were used to develop coal seams.

1760: Coal seams were discovered near Richmond, Virginia.

1790: Coal was used to manufacture charcoal, and later, to produce iron.

1850s: Steam engines were used for the first time in U.S. industry. Coal was used as a fuel for steam engines.

1880s: The development of the internal combustion engine allowed for the use of coal as a transportation fuel. Coal was used to power steam locomotives.

**Oil**

1910: The first oil well in the United States was discovered near Titusville, Pennsylvania. This was the beginning of the oil industry in the United States.

1920: Oil production rose to over 5 million barrels per day. By 1923, the United States was the world's largest producer of oil.

1930s: Oil production continued to rise, reaching a peak of 30 million barrels per day in 1950. This was the golden age of oil production in the United States.

1940s: The discovery of the Azerbaijani Oil Fields in the Caspian Sea marked the beginning of a new era in oil exploration.

1950s: The first synthetic fuels plant was built in California. This marked the beginning of the synthetic fuels era.

1960s: Oil production began to decline in the United States, as production shifted to the Middle East. The United States became a net importer of oil by the end of the decade.

1970s: The first major oil embargo occurred as a result of the Arab-Israeli War. This led to a sharp increase in oil prices and a decrease in oil production.

1980s: Oil prices continued to rise, peaking at $40 per barrel in 1980. This led to a decrease in oil production and a shift to alternative energy sources.

1990s: Oil production reached its peak of 28 million barrels per day in 1990. Since then, production has declined due to a decrease in oil prices and increased use of alternative energy sources.

**Electricity**

1870s: The first electric incandescent lamp was invented by Thomas Edison. This marked the beginning of the electric age.

1920s: The first large-scale hydroelectric power plant was built in the United States. This marked the beginning of the era of large-scale hydropower.

1950s: The first nuclear power plant was built in the United States. This marked the beginning of the nuclear age.

1980s: The first large-scale coal-fired power plant was built in the United States. This marked the beginning of the era of large-scale coal-fired power.

1990s: The first large-scale wind power plant was built in the United States. This marked the beginning of the era of large-scale wind power.

**Natural Gas**

1910: The first major gas field was discovered in the United States. This marked the beginning of the natural gas era.

1920s: Natural gas production reached its peak of 1 trillion cubic feet per day in 1925. Since then, production has declined due to a decrease in demand and increased use of alternative energy sources.

1970s: The first major natural gas embargo occurred as a result of the Arab-Israeli War. This led to a sharp increase in natural gas prices and a decrease in natural gas production.

1980s: Natural gas production began to decline in the United States, as production shifted to the Middle East. The United States became a net importer of natural gas by the end of the decade.

1990s: Natural gas production reached its peak of 2 trillion cubic feet per day in 1990. Since then, production has declined due to a decrease in demand and increased use of alternative energy sources.

This was the worst mining accident in United States history.

1970: The U.S. Bureau of Mines was created to help reduce accidents in mines.

1980: Surface mining with auger machines was introduced.

1990: More coal was mined than any other year. Coal was used by many large mines and power plants.

1990: More coal was used for generating electricity. Today, more than 50% of coal is used for electricity generation.

1990: Surface mines replaced underground mines as the leading source of coal produced in the United States. The importance of surface mining has continued to grow ever since then.

1993-74: The OPFC oil embargo focused attention on the energy crisis and resulted in an increase in demand for U.S. coal.

1975: OPEC was formed, leading to a sharp increase in oil prices and a decrease in demand for coal.

1976: The Surface Mining Control and Reclamation Act was passed, leading to stricter regulations for mining operations.

1978: The Clean Coal Technology Act was passed, leading to increased investment in coal technology.

1980: The first oil spill occurred at Prudhoe Bay, Alaska. This marked the beginning of the era of large-scale oil spills.

1983: The first major oil spill occurred in the Gulf of Mexico. This marked the beginning of the era of large-scale oil spills.

1987: The first major oil spill occurred in the North Sea. This marked the beginning of the era of large-scale oil spills.

1990: The first major oil spill occurred in the Persian Gulf. This marked the beginning of the era of large-scale oil spills.

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2017: The first major oil spill occurred in the Gulf of Mexico. This marked the beginning of the era of large-scale oil spills.

2018: The first major oil spill occurred in the North Sea. This marked the beginning of the era of large-scale oil spills.
1821: "Faraday's First Central Electric Station," a large windmill to generate electricity. He used the windmill to charge batteries in the office of his house in Cleveland, Ohio.

1832: Using Faraday's principles, Hippolyte Pixii (France) built the first dynamo, and electric generator capable of delivering power for industry. Tesla's dynamo used a small magnet around a piece of iron wrapped with wire.

1881: Michael Faraday (England) discovered the principle of electromagnetic rotation that would later be the key to developing the electric motor.

1880: George Westinghouse (U.S.) invented the electric refrigerator.

1899: Thomas Edison (U.S.) invented the electric motor, which was later used in the early development of electrical transformers.

1901: Nikola Tesla (U.S.) invented the Tesla motor, a transformer that could send enormous long distances across vast areas.

1905: George Westinghouse (U.S.) invented the electric refrigerator, a machine that could send enormous long distances across vast areas.

1911: Charles Brad (U.S.) invented the open cycle engine for airplanes that could produce a steady output of electricity.

1913: After many experiments, Thomas Edison (U.S.) invented an incandescent light bulb that could be used for about 40 hours without burning out. By 1880, his bulbs could be used for 1,200 hours. Electric lights (Buch an lamp) were first used for public street lighting in Edinburgh, Scotland. Electric lights were first used in Chicago, Illinois. In San Francisco, the first electric company to sell electricity was named to sell electricity.

1926: The Tennessee Valley Authority (TVA) was created. It was the first Federal power authority and was designed to provide regional power.

1935: Some of the New Deal legislation passed during the Roosevelt Administration was designed to regulate public utilities and to bring electricity to rural areas. The Public Utility Holding Company Act of 1935, which was designed to break up powerful holding companies that had bought up many smaller electric companies, was created. The Securities and Exchange Commission was created.

1954: The Atomic Energy Act of 1954 was passed. It allowed private ownership of nuclear reactors. Chaplin, Fuller, and Strauss (United States) working for Bell Labs, invented the first solar cell.

1961: The first commercially available integrated circuits were produced by the Fairchild Semiconductor Corporation of United States. All computer manufacturers now use chips that are manufactured by individual manufacturers.


1980: The first commercially available integrated circuits were produced by the Fairchild Semiconductor Corporation of United States. All computer manufacturers now use chips that are manufactured by individual manufacturers.

1994: In the United States, almost all large dams were built, given the increased demand for energy.

Ethanol

1826: Samuel Morey (United States) invented the electric refrigerator.

1860: Airplane engines were invented.

1908: A successful jet engine was tested in England.

1935: The first electric refrigerator was built.

1947: The first electric refrigerator was built by the Federal government for use in the armed forces.

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1994: In the United States, almost all large dams were built, given the increased demand for energy.
1964: The first all-welded production plant in the United States peaked at 165. The Tax Reform Act of 1964 increased the subsidy to 60 cents per gallon.

1965: Many ethanol producers went out of business due to subsidies. Only 74 of the 163 commercial ethanol plants (45%) remained operating by the end of 1965, producing 95 million gallons of ethanol for the year.

1966: Ethanol was found as an oxygenate in gasoline. Denver, Colorado, mandated oxygenated fuels containing methanol for use as an additive to gasoline to reduce carbon monoxide emissions.

1966: The National Health Education Act of 1966 donated the ethanol subsidy to 54 cents per gallon of ethanol. Ethanol prices began shifting from federal to state tax policy generation and adapting other converting technologies. The expanding melon and the highest level of corn in 1966 expanded the types of output, allowing the largest market for output, allowing the largest market for output.

1967: Walk a few steps on the leading of corn prices in the mid-1960s to ’67, a federal Subsidy passed subsidies to help the ethanol industry.

1968: Californian Standard Oil Company led the charge for ethanol’s growth. In the mid-1960s, California was home to the largest ethanol plant in the world. This plant was a success for the industry and set the stage for future growth.

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1938: The three of natural gas coming from imports peaked at 16.7%. 1940: After years of declining, gas well productivity reached a record low at 24,000 cubic feet per day. The average natural gas well produced only 29% as much as in 1918.

1941: Over one-fourth of the U.S. production came from Texas. 1942: The record-setting hurricane season of 2005 caused major damage to the U.S. natural gas and petrochemical infrastructure. Of the Gulf of Mexico, one of the nation's largest sources of oil and gas production, was shut down for one month due to wind damage. 1943: President Roosevelt requested a letter from Albert Einstein on the possibility of a uranium weapon. 1944: German energy output decreased, and it was assumed that the world's only heavy-water production plant, Philip Abelson and J. Robert Oppenheimer (United States) demonstrated that uranium could be converted into a variety of forms of energy, including energy beams for use in military applications.

1919: In the Organization of Petroleum Exporting Countries (OPEC) petroleum reserves were equivalent to 490 billion barrels of oil. 1915: Rutherford (United States) conceived the idea of fission. 1917: King George V (United Kingdom) discovered the sun's magnetic field. 1918: The United States dumped its atomic bomb on Hiroshima, Japan, and three days later dropped another one on Nagasaki, Japan. Japan surrendered after two weeks, ending World War II.

1979: The first oil crisis began as OPEC members increased oil prices, leading to a significant increase in oil prices. 1982: After years of increased oil prices, OPEC members decided to reduce oil production, leading to a decrease in oil prices. 1984: The United States imposed an embargo on reprocessing used nuclear fuel. 1986: President Reagan lied about a nuclear power accident in Japan. 1993: The Russian government imposed an embargo on reprocessing used nuclear fuel.

1920: Albert Einstein (U.S. scientist) developed the general theory of relativity. 1925: King George V (United Kingdom) conceived the idea of fission. 1926: President Coolidge (United States) signed the Neutron Discovery Act, which provided for the development of a neutron detector. 1927: The first neutron detector was built at the University of California.

1931:完成后 received the Nobel Prize in Physics for his discovery of the neutron. 1932: James Chadwick (United Kingdom) discovered the neutron as well as the proton, known as a heavy hydrogen and used in nuclear reactors.

1933: Enrico Fermi (U.S. scientist) helped develop the first neutron detector. 1934: He had helped produce the first neutron detector.

1935: The process of splitting uranium nuclei, called nuclear fission, was demonstrated by scientists Otto Hahn and Fritz Strassmann (Germany).

"bureaucracy" for redaction or redaction in electric power, especially as a result of bureaucratic, mechanical failure, or errors by bureaucrats.

1973: Prime Minister Trevor Wilson proposed replacing the Energy Research and Development Agency (ERDA) with a new agency. 1974: The Energy Research and Development Administration (ERDA) was established. 1975: The Energy Research and Development Administration (ERDA) was established. 1976: The Energy Research and Development Administration (ERDA) was established. 1977: The Energy Research and Development Administration (ERDA) was established.

1983: The Nuclear Regulatory Commission (NRC) was formed to regulate the nuclear industry. 1984: The first operating nuclear power plant, Three Mile Island, was shut down owing to safety concerns.

1985: The United States dumped its atomic bomb on Hiroshima, Japan, and three days later dropped another one on Nagasaki, Japan. Japan surrendered after two weeks, ending World War II.

1990: Nuclear power plants provided 19% of the electricity used in the United States. 1991: The Three Mile Island nuclear power plant accident occurred.


2000: The nation's largest nuclear power generating station, Oconee Nuclear Station, in South Carolina, experienced a serious accident, the Oconee Nuclear Power Station accident.

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2022: The nation's largest nuclear power generating station, Oconee Nuclear Station, in South Carolina, experienced a serious accident, the Oconee Nuclear Power Station accident.
Photovoltaic

1905: Albert Einstein published a paper on the photoelectric effect. He would win Nobel Prize in Physics for his theories.

1950s: Boeing tested solid-state photovoltaic modules, each too expensive to be practical. The first successful photovoltaic cells were developed in the late 1950s by Daryl Chapin, Calvin Fuller, and Gerald Pearson.

1956: The Photovoltaic Energy Commercialization Act of 1956 was passed. The act extended tax credits to the purchase of photovoltaic systems.

1955: At the end of the 1950s, a program for the development of distributed photovoltaics was established.

1960s: The Solar Energy Research Institute (SERI) was established.

1974: The Solar Energy Industries Association (SEIA) was formed.

1979: The Solar Energy Research Institute (SERI) became the National Renewable Energy Laboratory (NREL).

1980s: Solar Technology Applications Program (STAPP) was created to assess and demonstrate the viability of utility-scale photovoltaic electric generating systems. STAPP was later renamed the National Renewable Energy Laboratory's (NREL) Solar Energy Research Institute.

1990s: The Photovoltaic Program was established as part of the Solar America Initiative. The program aimed to reduce the cost of photovoltaic electricity to $1 per watt-hour by 2015.

1990s: The National Renewable Energy Laboratory (NREL) developed a solar cell made of gallium indium phosphide and gallium arsenide. It was the first one of its kind to exceed 30% conversion efficiency.

2000s: A new generation of photovoltaic cells was developed, including thin-film and multi-junction cells. These cells are more efficient and have lower costs than traditional silicon-based cells.

2010s: The cost of photovoltaic electricity continued to fall, reaching a record low of $0.02 per kilowatt-hour in 2019.

Solarthermal

1901: Horseless carriages began to replace horse-drawn carriages, leading to the development of the first automobile.

1908: Henry Ford introduced the Model T, the world's first mass-produced automobile.

1920s: The development of the first practical photovoltaic cells was initiated. These cells were made by using semiconducting materials such as cadmium sulfide.

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Transportation

1812: The first steam-powered locomotive was built by George Stephenson.

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Max Melzian / 165254
By 1955, new coastal wind farms were required to meet a Corporate average Fuel Economy (CAFE) standard for fuel economy of 27.5 miles per gallon.

1975: 80% of households had at least one vehicle per person.

1976: The first hybrid electric vehicle, powered by both a rechargeable battery and gasoline, became available in the United States.

1980: Americans owned 220 million cars.

1985: A total of 1,188 million households (39%) owned or gifted a lightweight vehicle (light car, light truck, or motorcycle).

1990: Sport utility vehicles (SUVs) accounted for 27% of all lights-duty vehicle sales, up 68% from 1990.

1995: Tracking accounted for 65% of energy saved for transportation. Freeway transportation accounted for 18%, natural gas pipelines for 9%, and Coal-1 breakthrough for 8%.


2000: Americans spent 31.2 billion dollars on light-duty vehicle sales, up 135 miles.

Wind

1901: Daniel Halladay and John Bushman worked to build and sell the Halladay Windmill, designed for the American West. It had an open rotor design and used wooden blades. They also named the U.S. Windmill Company.

Late 1880s: Thomas E. Byrd conducted over 1,000 wind experiments using a built-in windmill. He invented the mathematical windmill, which used grass to reduce the unequal speed of the blades. This design had greater lifting power and smoother moving action, and the windmill could be expanded in width. They also named the American Company for LEVil Windmills. The development of steel blades made windmills more efficient. Up to 300,000 windmills supplied power across America in water mills moved wood. Homesteaders purchased windmills from catalog or traveling salesmen on credit. Their own mills were used to pump water, feed corn, saw wood, and still grain.

1893: Charles F. Beach used the first large windmill to generate electricity in Cleveland, Ohio. Windmills that produce electricity named as call-windmills. In later years, General Electric acquired Beach's company, Beach Electric Co.

1903: In Chicago, Illinois, the World's Columbian Exposition (also known as the Chicago World's Fair) highlighted five windmill companies that showed their goods.

Early 1900s: Windmills in California pumped submersive to reservoir ponds. This provided grid money with salt.

1952: The Energy Policy Act of 1972 called for increased energy efficiency and renewable energy use and authorized a producers tax credit of $1,774 per kilowatt-hour for wind-generated electricity. It also established the Public Utility Holding Company Act to make small utility companies able to compete with larger ones.

1953: U.S. Windpower developed one of the first commercially available variable-speed wind turbines, the 2.5MW-50. The development was completed over the years, with the final prototype being completed in 1951. The $28-million project was funded solely by U.S. Windpower, Inc. (a wind turbine company).

1973: In a ruling against the California Public Utilities Commission, the Federal Energy Regulatory Commission (FERC) ruled that it was unfair to install qualifying renewable facilities (QRFs) rates that were lower than the utilities' avoided cost, the amount that would be saved by the utility to produce the same amount of electricity.

1984: The Department of Energy (DOE) Wind Energy Program (WEP), DOE/GT's Wind Energy Program, was established to encourage the use of renewable energy. The WEP was established with $100 million in federal funding from the DOE.


1997: The DOE's Wind Energy Program set the goal of developing wind turbines with a capacity of 100-300 gigawatts by 2010.


1999: The DOE's Wind Energy Program set the goal of developing wind turbines with a capacity of 10-20 terawatts by 2030.

2000: The DOE's Wind Energy Program set the goal of developing wind turbines with a capacity of 100-300 terawatts by 2050.

2002: The DOE's Wind Energy Program set the goal of developing wind turbines with a capacity of 1-5 petawatts by 2100.
Peak Oil

World oil and gas reserves are estimated in four ways:

1) those that are economically recoverable (this is what is used most often), also known as proven reserves,
2) those that are technically recoverable (we think we could recover these in the future).
3) total or in-place reserves (the total amount of oil and gas we know of but know we can't get it all out yet), and
4) Unknown reserves (those we do not know about yet, primarily under ice sheets).
Global Annual Oil Production
(billions of barrels)

Oil becomes more plentiful
Peak Oil
Oil becomes more scarce & expensive

1900 1930 1960 1990 2020 2050 2080 2110 2140
Why haven't we seen a photograph of the whole Earth yet?
Extremism in pursuit of green

It turns out these "skeptics" were right, and Mr. Gore can't ignore it.

United States, according to Mr. Gore and his environmentalist colleagues. The President-elect has been a vocal advocate for environmental protection, and his administration has pledged to take strong action to combat climate change.

In his first major address as President-elect, Mr. Gore outlined his vision for a new era of environmental stewardship. He vowed to aggressively pursue policies that would reduce greenhouse gas emissions and protect the planet's ecosystems.

Mr. Gore's plan includes a comprehensive strategy to transition the United States to a clean energy economy. This will involve investing in renewable energy technologies, improving energy efficiency, and implementing a carbon tax to incentivize companies to reduce their emissions.

The President-elect has also pledged to rejoin the Paris Agreement, a global treaty aimed at limiting climate change. The United States withdrew from the agreement during the previous administration, but Mr. Gore has vowed to rejoin as soon as possible.

Mr. Gore has been a vocal critic of his predecessor's environmental policies, and he has called for bold action to address the crisis. His administration will face formidable challenges in implementing these policies, but Mr. Gore has expressed confidence in his ability to lead the country on this important path.
Role of creative non-fiction

Important role of narrative structure in science writing

"Its ability to bridge science and the humanities is making environmental issues more accessible to young readers—proving literature to be a surprisingly valuable tool in collective efforts to address global warming."

-Ullrich

*Term coined in 2007 by Don Bloom

*Tyndall Centre for Climate Change Research
"Democracy cannot survive overpopulation. Human dignity cannot survive overpopulation... The more people are there, the less one person matters."

Isaac Asimov, American science fiction writer and professor at Boston University

1988

"A World of Ideas with Bill Moyers," television.
"Patterns of accelerating resource use, and their variation among regions, are important but secondary: problems of wasteful consumption can be solved if population growth is halted."
Carrying Capacity

(Bartlett) "The greater degree to which the carrying capacity has been exceeded, the more probable it is that coercion will become a factor in these programs."

"A major use of technology is, and has been, to accommodate the growth of populations, and to remove recognition of the importance of living within the carrying capacity of the environment."

“The inevitable and unavoidable conclusion is that if we want to stop the increasing damage to the global environment, as a minimum, we must stop population growth.”

The limit to the number of humans the earth can support in the long term without damage to the environment

Sustainable “ Growth ”

An oxymoron

“Whether the growth is smart or dumb, the growth destroys the environment.”

Sustainable “ Development ”

(Daly, 9) “Development without growth beyond carrying capacity, where development means qualitative improvements and growth means quantitative increase.”
"Saudi Arabia has a bunch of really big jelly donuts. The United States has lots of tiramisu, plus some pretty good jelly donuts as well. But we keep finding more tiramisu."
No Peak Oil For America Or The World

James Conca, CONTRIBUTOR

Oil is more plentiful than you can imagine. And we keep figuring out easier and more economical ways to get it out of the ground.

In 1938, the famous geologist M. King Hubbert came up with the concept of peak oil, which is defined as having extracted half of the recoverable, conventional oil reserves. After that, oil production declines and cannot keep up with growing demand as the population continues to rise.

Petroleum Geologists Predict Peak Oil Soon!

We used to think about Peak Oil like this – the reserves are finite, we know where they are and how long they will last, and we will start running out soon. But with recent technological innovations, we keep finding new oil deposits that are

https://www.forbes.com/sites/jamesconca/2017/03/12/no-peak-oil-for-america-or-the-world/99e7a72a6427b

Dr. James Conca is an expert on energy, nuclear and dirty bombs, a planetary geologist, and a professional speaker
Geo Engineering

“A comic faith in technofixes”

“whether secular or religious, technology will somehow come to the rescue of its naught but very clever children, or what amounts to the same thing, God will come the the rescue of his disobedient but ever hopeful children.”

(Haraway, 3)
Scenario Planning

Method for exploring plausible alternative futures
- Highlights unknown interactions
- Each scenario represents an account of a plausible future

Uncertainty risk
- There is no single best strategy:
  - Have to be flexible to unfolding events

1. Identify problems & decisions to be made
2. Identify driving forces
3. Create a matrix
4. The best plans are those that play as well across many scenarios

"Science doesn't tell us what we should do. It only tells us what is.
- Kingsley, Flight Behavior"

Collaborative Governance

(Innes & Booher) Emerges in response to crisis in democracy
- Goals are more fluid
- Facilitate the development of resilience and adaptive strategies
- New mental model and approach

(Mandarano) Evaluating Collaborative Planning
- Process matters but it is not enough
- Outputs / outcomes

Governance
- Implies that there are more actors than just government

The role of an outside actor “Provides a venue for organized and unorganized interests to present their views and analyses on pressing contemporary problems, or to frame or reframe issues in such a way that they can be dealt with by governments”
- Howlett et al. (122), Ostrom (23)
Risk Assessment

Societal Risk = Probability of HAZARD occurring x IMPACT

** to get (H) and (I), you have to make all kinds of assumptions through risk assessment

Decision-making is a product of risk assessment AND risk management

**impact as important as probability

1. Trust
2. Cognitive biases
Importance placed on things right in front of me or that I experienced
Tricks of the mind
3. Lack of reliable information

Risk Communication
How should you communicate to the public?
Does it matter who you're communicating it to?

Who communicates the info?
Empathizing first is very significant
Be as simple as possible

Making that list of hazards is a subjective evaluation
Given your models and studies,
That moves on to another subjective stage of risk assessment
...this series of judgements should engage the public
(at least they should understand what's going on)
"Resilience"

1: the capability of a strained body to recover its size and shape after deformation caused especially by compressive stress

2: an ability to recover from or adjust easily to misfortune or change
"The contents of this book demand that we question its very title. "Who will take control of the term and drive its usage?"

The Resilient City
VALE & CAMPANELLA

Exposure — Resistance — Resilience
The Vulnerability of Cities: Natural Disasters & Social Resilience
PELLING
Human-centered, Natural hazards
Adopts the term "resilience"
UN/ISDR

Adaptive Capacity
IPCC
2003

2006
HOLLNAGEL ET AL
Engineering Resilience: Concepts & Precepts

2010
HOLLING
Ecological Resilience & Engineering Resilience

2012
PORTER & DAVOUDI
The Politics for Resilience in Planning: A Cautionary Tale

2015
FISICHELLI
Is 'Resilience' Maladaptive? Towards an Accurate Lexicon for Climate Change Adaptation

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SHEFFI
Collaborative Resilience: Overcoming Vulnerability for Competitive Advantage

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GOLDSTEIN
Sustainable & Resilient Communities

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The ideas, arguments & propositions of ecology have played an outsized role in the evolution of resilience theory. "It also matters which active interventions are deployed to delay or alter that systems change, and it matters who directs the interventions, and who are the intended beneficiaries... and who actually benefit." The Politics of Resilient Cities: Whose Resilience & Whose City?
VALE

Leading through Adversity
Restoring Economic Dynamism
Strengthening Societal Resilience
WORLD ECONOMIC FORUM

100 Resilient Cities
ROCKEFELLAR FOUNDATION

The politics of resilient cities: whose resilience & whose city?

VALE

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Sustainable & Resilient Communities

ECONOMIC COMMUNITY URBAN
"Resilience"

Ecological

- "capacity to persist"
- systems theory
- adaptive cycle
- understand/manage the dynamic interactions between human + natural systems

Engineering

- rooted in risk management
- identify optimal configurations/materials to minimize effects of a catastrophic event

Sociological

/ Psychological

- coping capacity
- social fabric
- ability of individuals/groups to persist during period of upheaval

Planning

/ Design

- translation of ecological principles into physical form (redundancy, self-organization)
- ...devising protective infrastructures for coastal environments
for who?

Resilience analysis
does not engage with the material, social, and symbolic landscape
that constitutes the lived experience of the communities whose resilience is being sought

(Adger, 2009)

sustainability --- resilience

"the ideas, arguments, and propositions of ecology have played an outsized role in the evolution of resilience theory."

"a process, not an object or outcome"

mitigation v. adaptation

controlled
distributed
vertical
horizontal
grey infrastructure
green infrastructure
## Resilience

### Risk

"a systematic way of dealing with the hazards and insecurities induced and introduced by modernization itself"

defined by the mass media and scientific or legal professions

Beck

### Adaptation

A state reflecting how individuals deal with certain stressors

(y. Resilience as a trait, reflecting a general ability to master challenges)

### Mitigation

### Transformation
BIG U

"it is to build to a fixed height of 16 feet based on projected sea level rise to the year 2050. But what happens after 2050?

Klaus Jacob
seawalls increase risk in the long-term!

False sense of security; that will end up in more development where it shouldn’t be
Adaptive Capacity

“enhanced through collaborative problem-solving, social learning, and engaging a diversity of stakeholders and knowledge practices”

grounded in:

- a strong connection to place
- ample social capital
- dense social networks
- a positive outlook"

---

"Urban Resilience"

"the ability of an urban system — and all its constituent socio-ecological + socio-technical networks across temporal and spatial scales to maintain or rapidly return to desired function in the face of a disturbance to adapt to change and to quickly transform systems that limit current or future adaptive capacity."

— Meerow (202)
Two Experiments

1. Write a story about the picture
   (either resilience or adaptation)

   frames are EQUIVALENT
   when thinking about past event

   “frame matters when
   thinking about a
   stream of future risks”

2. Fictional coastal city flood mapping tool

   3 policy scenarios:
   Resilience
   Adaptation
   No Policy

   associated with an increased
   concern about risk, but less
   willingness to take individual action

   smaller, more manageable risk
"Thinking about a flood that already happened focused participants on adapting to a specific event while diverting their attention away from thinking about preparing for possible future challenges."

"Concern undermines action, unless accompanied by plausible plans."
Urban Design

Alexander Cuthbert

Whole Urban Design?

1/16/17

A field with a strong capacity to evoke dislocation.

What do U.D. readers feel?

U.D. lacks a concrete framework. Relationship of the elements don't make sense.

1. Claims on the original:
   - Since coined in 1945 (in Harvard).
   - A concrete framework.
   - The elements don't make sense.

2. Architecture vs. Urban Design:
   - No difference between the city and building.
   - Need a "surprise of the whole field".
   - "Nothing is beyond the urban designer's capacity."
LANDSCAPE AS URBANISM

CHARLES WADSWORTH

Radically decentralized urbanism
increased environmental awareness

"Landscape has emerged as the most relevant discipline
bristling with questions hotly debated in
architecture, urban design, and planning."

James Corner
"The lesson was: unexpected beauty
of the planning profession"

CSTV: Design with Nature
"requires an emotional commitment"

observed
landscape function as "natural process"
architectural/speculative approach to landscapes

1970's - 80's
"The discipline of city planning assumed another, larger role in
in today's urbanized world: a more active, proactive role.
"Landscape function as "natural process"

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From Belanger, *Landscape Infrastructure*, p.214. "Figure 8.20
Open systems: regional flow diagram of a representative
urban region by Howard T. Odum showing ranges, vectors,
and magnitudes of energy flows. Courtesy of Colorado
University Press."
IDEALS: LANDSCAPE + INFRASTRUCTURE

2/12/17

1. Continued...

Context:
- The definition of Urban Design is 'ug for good'... even though most ppt misses G&V's polymorphic definition.
- So... it seems...
  - to the only article ppt are critiquing —> the only one worth (sort of) agreement?... reading!

Bend/Process:
- Don't know how to think old urban design
  - BUT... is he even trying to define it again?

Speaker:
- U.D. problem at the time of writing —> air a DEAD END?

RE: As soon as Neurath demonstrated
- that planning depends on design —> to concepts!

Keep Lines:
- 'Social'... what are design that large boon? in —> social/political
  - conditions? —> Planning will be an act of imagination and national policy

U.D. has been a strategy for
- how to establish wealth
- with that... (intermediate) last question
- in the 1960's

"Expanding consumption" —> expansion of capitalism
- U.D. struggle to recover from what Jacobs showed us

**BELONGER**

Legs in urban process outside of any fixed infrastructure.

IS LANDSCAPE?
- IS INFRASTRUCTURE?
- non-monumental, moveable,
- non-durable, made to
- change, expand, transform

ECOLOGY/OPEN SYSTEM

How can an urban infrastructure be an open system?
- By durability!

ECOLOGIES OF SCALE

Ecologies of: "..."...
- Regionalization: "expanding" = "deteriorating"... and/or combination
- Money: price a point of resistance to the homogenizing effects of globalization
- Design: Services, endogeneity: design the infrastructure, just
- worked about designing the city

Vertebrate/Reptile

1966
- attempts to map urban condition that beyond city/landscape/infrastructure

Understanding of a river... as landscape infrastructure

- Marcus de
- "landscapes, zoo"
- "landscape view"
- "Terrestrial View"
- "Landscape View"
Are designers working within a context that is growing, changing faster than they are?

Ex: The Castles or the Amusement

Lights that become infrastructure (soon you extend the scale,兔子 picked care, not designed, try points made for NYC, or airports, etc, for the power)

"But who is changing things less many?"

There aren't urban designers or landscape architects involved...

Neotraditionalism

People become here and talk on

Be skyline, context, scale

Vella Brossman + Evan Bloom, "Desert chic centers"

metaphysical & ornamental urbanism/architecture is in the community

Colin Rowe, "Commuter Cities"

designs for modern

narrative, complex, sense of direction

Kaiser

wikileaks, urban decay, earthquakes, rising

In need of infrastructure
LANDSCAPE AS URBANISM

Charles Waldheim

- Radically decentralized urbanism
- Increased environmental awareness

"Landscape has emerged as the most salient design concept in architecture, urban design, & planning."

James Corner

"The landscape - unexpected beauty is the planning practice"

Landscape as a "model for phase"

"... as the preoccupation of supposed landscapes between urban and rural"...

Contemporary Landscape Urbanism

- The emerging design concept in urban planning
- "The landscape urbanism is a "model for phase"

Benjamin Thompson, "The Urban Landscape"

100 acres in Paris

- A new form of urbanism
- "The landscape urbanism is a "model for phase"

Kenneth Frampton

- "Landscape is a "model for phase"

Peter Rowe, "Making a Landscape"
“Blue Marble”
Chapter 1

Thinking Globally

In 1968, three American astronauts became the first human beings ever to see Earth's full disk from space. President Lyndon B. Johnson mailed framed copies of the Apollo mission's photographs to the leaders of every nation as an allegory of the inevitable unity that encompasses all human division and diversity and binds us to the natural world.

By then, of course, representations of Earth as a globe were already centuries old. Nevertheless, many saw a transfiguring power in the awesome beauty of those famous photographs. That small blue ball, spinning alone in darkness: it hit you like a thunderclap, a sudden overwhelming flash of insight. You saw, all at once, the planet's fragility, its limits, and its wholeness, and it took your breath away. The law professor Lawrence Tribe once called it a "fourth discontinuity," as massive a perspectival shift as those brought on by Copernicus, Darwin, and Freud. By then, according to rumor, David Brower, founder of Friends of the Earth, had distilled Tribe's "fourth discontinuity" into four words: "Think globally, act locally."

Whatever you think of it as a political principle, "Think globally, act locally" remains arresting in its boldness. It captures an entire philosophy, complete with ontology, epistemology, and ethics, in a bumper-sticker slogan. It asserts an intimate relationship between two vastly different scales: macro, world-scale environmental and economic systems, on the one hand, and the micro sphere of individual choice and action, on the other. It extends an arrow of agency, comprehending macro effects as the results of vast aggregations of micro causes. Thus it locates the meaning of individual action in its relationship to the gigantic whole. Finally, it affirms that global change matters so deeply that it should occupy the intimate corners of everyday awareness and guide each person's every choice.

"Thinking globally" meant seeing the world as a knowable entity—a single, interconnected whole—but in a sense that lacked the secure stasis of maps, parlor globes, or pre-Darwinian cosmologies. Instead, it meant grasping the planet as a dynamic system: intricately interconnected, articulated, evolving, but ultimately fragile and vulnerable. Network, rather than hierarchy; complex, interlocking feedbacks, rather than central control; ecology, rather than resource: these are the watchwords of the new habit of mind that took Earth's image for its emblem.

These photographs and that slogan conveyed all this, and more, not just because of what they said but also because of when they said it. They fell directly into an overdetermined semiotic web prepared by (among

Figure 1.1
Photograph of Earth taken from Apollo 8, December 1968.
Image courtesy NASA.

Excerpt from Chapter 1, A Vast Machine, Paul N. Edwards
GAIA

the planet is discovered to be a living, breathing entity
(Lames Lovelock)

ANTHROPOCENE

refuge existed on land + sea masses

HOLOCENE

could not exist as an object of knowledge
without systems theory + instruments
   "a way of seeing the earth from space" (optics)

CAPITALOCENE

(or) "plantationocene"
capital accumulation preceeds the industrial revolution

"It is our job as thinkers to somehow engage in telling
+ changing the stories so that they are livable"
   - Ursula Gwen

not about the hero /humanity
   "big enough stories"
Disaster Capitalism

I call these orchestrated raids on the public sphere in the wake of catastrophic events, combined with the treatment of disasters as exciting market opportunities, "disaster capitalism."

Exactly thirty years after these three distinct forms of shock descended on Chile, the formula reemerged, with far greater violence, in Iraq. First came the war, designed, according to the authors of the "Shock and Awe" military doctrine, to "control the adversary's will, perceptions, and understanding and literally make an adversary impotent to act or react." Next came the radical economic shock therapy,

people from rebuilding their villages near the water. "In a cruel twist of fate, nature has presented Sri Lanka with a unique opportunity, and out of this great tragedy will come a world class tourism destination," the Sri Lankan government announced. By the time Hurricane Katrina hit New Orleans, and the nexus of Republican politicians, think tanks and land developers started talking about "clean sheets" and exciting opportunities, it was clear that this was now the preferred method of advancing corporate goals: using moments of collective trauma to engage in radical social and economic engineering.
Shake + Awe Doctrine (War in Iraq)

"Shake + awe are actions that create fears, dangers, destruction that are incomprehensible to the people at large. Notice in the fronts of tornadoes, hurricanes, earthquakes, floods, uncontrollable fires, famine + disease. Can engage: Shake + Awe."

- "control + divide/stop's will, perception, understand, ... important to ask/fear in it"

Jump on disaster as an opportunity for radical (economic) change.

The Shake Doctrine

"Only a crisis - actual or perceived - produces real change."

- "Develop alternatives & keep them on the shelf until disaster strikes. Use them when the "politically impossible becomes politically inevitable."

- "Create an event slowly, impose sought + irresistible change before the cross rank/secure slipped back into the 'trapped by the shitbox'"

- Do danger of UK/ENKIL by single shake eq!

Disaster Capitalism

"Organized needs on the public sphere in the wake of catastrophic events + the treatment of disaster as exciting market opportunities."

Economic: “Shake Treatment” (Friedman)

- "Shake, seduce, shape of the economic shifts world, provide psychological reactions in the public."

- "Fast track the adjustment."

Rebuilding + Attachment to Place

- "They want to reassert their relationship to the place that framed them."

- "Kotel victim: "When I return the city, I feel like I'm erasing myself.""

Reconstruction

- The process begins by "finishing the job" of the disaster (cause rest of public sphere)
# Army Corps of Engineers

<table>
<thead>
<tr>
<th>Year</th>
<th>US Army Corps of Engineers</th>
<th>Rivers and Harbors Act</th>
<th>Flood Control Act</th>
<th>Flood Control Act</th>
<th>National Flood Insurance Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>Army Corps of Engineers, located within the Department of Defense, is the nation's oldest water resource agency, dealing primarily with the construction and maintenance of navigable streams and harbors for civilian and military construction.</td>
<td>Required that construction plans and specific data sites be approved by the Army Corps of Engineers, who mainly built levees in the 20th century.</td>
<td>Declared flood control to be acceptable federal government activity - authorized more than 200 construction projects; Army Corps - Department of Agriculture shared responsibility.</td>
<td>Allowed the Army Corps to build multiple-purpose reservoirs, mainly for irrigation, navigation, water supply, hydropower, and recreation.</td>
<td>&quot;Scientists turned the climate record upside down.&quot; Subsidizes development in floodplains.</td>
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<tr>
<td>1900</td>
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<td>1936</td>
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<td>1944</td>
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<td>1968</td>
<td></td>
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</tbody>
</table>

Max Museum 194524

393
Can an urban fortress keep city-dwellers safe?

For more than a century now, winged dragons flanking a shield have guarded each entrance to the City of London. In recent decades, this coat of arms has been whitewashed with an elaborate anti-terrorism apparatus known as the "Ring of Steel," consisting of concrete barriers, checkpoints, and thousands of video cameras. This protective system, set up to defend against bombings by the Irish Republican Army, "fortress urbanism.

Perhaps no city in the Western world is better equipped to deter terrorist bombings. Yet the two waves of attacks this month have demonstrated that, in London, "fortress urbanism" is far from impregnable. Determined terrorists can find ways to strike almost at will, even if their plans sometimes fail, as apparently happened last week in London.
**WHAT IS ENGINEERING WITH NATURE?**

The U.S. Army Corps of Engineers (USACE) Engineering With Nature (EWN) Program enables more sustainable delivery of economic, social, and environmental benefits associated with water resources infrastructure. EWN aligns natural and engineering processes to efficiently and sustainably deliver economic, environmental, and social benefits through collaborative processes. EWN is a crosscutting program of activities resulting from collaborations among multiple Civil Works Research, Development, and Technology programs and non-USACE partners.

### UPCOMING EVENTS

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Jul - 2 Aug 2018</td>
<td>International Conference on Quarter Engineering 2018</td>
<td>Berlin, Germany</td>
</tr>
<tr>
<td>2019</td>
<td>EWN Strategic Plan 2018-2023: Expanding Implementation</td>
<td></td>
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<tr>
<td>2019</td>
<td>Texas A&amp;M Spring Seminar Course on Engineering With Nature</td>
<td></td>
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<tr>
<td>2017</td>
<td>Building a Resilient Scheldt Delta Conference, Wiesingen, Netherlands</td>
<td>June 2017</td>
</tr>
<tr>
<td>2017</td>
<td>EWN-ICW Demonstration Workshop on Engineering with Nature</td>
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</tr>
</tbody>
</table>

### WHAT'S NEW

- EWN Strategic Plan 2018-2023: Expanding Implementation
- Texas A&M Spring Seminar Course on Engineering With Nature
- Working with Nature 1: Rivers Managing Ecosystem Services and Kinds of Fish Course, Pittsburgh, Pennsylvania - September 2019
- Building a Resilient Scheldt Delta Conference, Wiesingen, Netherlands - June 2017
- EWN-ICW Demonstration Workshop on Engineering with Nature

### EWN NEWS

- EWN Initiative played role in wetland restoration - August 2017
- EWN team presented WEDA's 2017 Environmental Excellence Award - June 2017
- EWN featured on Dredging Today - March 2017
- EWN featured on Dredging Today - March 2017
- EWN field-based workshops, Savannah, GA - March 2017
Denial

NOT greed, inhumanity, carelessness

consciousness = pain

apathy = the mask of suffering

Apathy

nonresponse

"the refusal or inability to experience pain"

helplessness

"a way of adapting, of defending oneself in a situation that is utterly overwhelming and where there is no end in sight"

Kari Norgaard. Living in Denial: Climate Change, Emotions, and Everyday Life.
Denial operates in the slippage zone between knowing and not knowing:

We are vaguely aware of choosing not to look at the facts, but not quite conscious of just what it is we are evading. We know, but at the same time we don't know
Hyperobjects

Object-Oriented Ontology
"unique form of realism + non-anthropocentric thinking"

The gap between

PHENOMENON + THING

global climate weather

"I can think and compute climate, but I can't directly see or touch it"

"I can't locate the gap anywhere in my given, phenomenal, experiential, scientific space."

Things never coincide with their phenomena (Kant)
the idea of the END OF THE WORLD is not effective

the being we are supposed to feel anxiety about and care for is gone

UNLESS WE ACT NOW environmentalist plea must stop in order to reach full ecological coexistence

"OBJECTS IN MIRROR MAY BE CLOSER THAN THEY APPEAR"
"We talk about climate change being driven by carbon emissions but really I think right now the major driver is construction - the construction industry."

"This whole spree of dam building ... what's behind it? it's the cement industry."

Cement is the most carbon heavy

Amitav Ghosh
Author of The Great Derangement: Climate Change and the Unthinkable
“The triumphant procession of the industrial system causes the boundaries between nature and society to become blurred.

Accordingly, destructions of nature can no longer be shifted off onto the ‘environment’ either, but as they are universalized by industry, they become social, political, economic and cultural contradictions inherent in the system.”
Destructive response to the horrors of the anthropocene:

“The game is over, it’s too late, there’s no sense in trying to make anything any better, or at least no sense in having any active trust in each other in working and playing for a resurgent world.”

Donna Haraway
Beyond Neutrality:
The Possibilities of Activist Mediation in Public Sector Conflicts

John Forester and David Stitzel

The ideal of neutrality in public sector mediation obscures more than it clarifies. Worse still, it distracts our attention from the skillful, ethical judgments every mediator must make in practice. To explore the political and ethical influence mediators inevitably exert as they manage dispute resolution processes, we have designed a scorable three-party mediation exercise for teaching and research, "Westville: Mediation Strategies in Community Planning," that allows us to investigate activist, non-neutral mediation strategies (Forester and Stitzel, 1988).

We begin here by identifying a community planning negotiation dilemma whose perverse outcomes lead us to consider seriously the adoption of mediation roles by planners. We turn next to controversial questions regarding power, representation, and neutrality that challenge both the desirability and the viability of planner-mediator roles. To explore these questions concretely, we consider a composite case in the fictional town of Westville, the subject of our teaching and laboratory simulation designed expressly to investigate non-neutral mediation strategies. If planners typically work for governments and have agendas of their own, as in Westville, can they nevertheless help to resolve public sector disputes as activist, non-neutral mediators? We wish to argue the affirmative case: activist mediation is a viable, practical and ethically desirable strategy.

A Community Planning Negotiation Dilemma

Consider the problem in Westville. Hunter, the representative of the Westville Homelessness Task Force, hopes to turn the old social service center into a shelter for Westville's homeless. Wood, who represents a local community...
Any man who breaks a law that conscience tells him is unjust and willingly accepts the penalty by staying in jail in order to arouse the conscience of the community on the injustice of the law is at that moment expressing the very highest respect for law.

If it is of such a nature that it requires you to be the agent of injustice to another, then, I say, break the law.

Think we MUST!

Henry David Thoreau  Virginia Woolf  Martin Luther King Jr.
TRY STUFF, try everything. One thing we need is better outlaws.

Risk society requires us to be reflexive.

All improvement has to be made in the OUTLAW AREA.

Buckminster Fuller
Stewart Brand
Ulrich Beck

Impossible Conversations

A lot of thinkers, scholars, and activists seem to have been telling us to question system of power and break the rules.
Reality is formed through our participation with things: material objects, images, values, cultural codes, places, cognitive

There are no appearances to be photographed, no experiences to be copied, in which we do not take part. SCIENCE, like art, is not a copy of nature but a recreation of her.

Science has done more than to fill in the details of a story: it has set new standards of objectivity in description of the past... it curbs the freedom of self-expression in history.
The triumphant procession of the industrial system causes the boundaries between NATURE and SOCIETY to become blurred.

The doctrine of objectivity... the view of infinite vision... is an illusion, a god trick.

Ulrich Beck
Donna Haraway

Impossible Conversations

A lot of thinkers, scholars, and activists seem to have been telling us to question system of power and break the rules.
Given that many people do know the grim facts, how do they manage to produce an everyday reality in which this urgent social & ecological problem is invisible?

We often assume that political activism requires an explanation, while inactivity is the normal state of affairs. But it can be as difficult to ignore a problem as to try to solve it.
Culture influences action not by providing the ultimate values toward which action is oriented, but by shaping a repertoire or toolkit.

Americans are good at responding to a crisis and then going home to let another crisis... we tend to think of political engagement as something for emergencies... rather than a part, even a PLEASURE, of everyday life.

Ann Swidler

Rebecca Solnit

Impossible Conversations

A lot of thinkers, scholars, and activists seem to have been telling us to question system of power and break the rules.
"If at first an idea is not absurd, then there is no hope for it."

-Einstein
CLIMATE CHANGE & THE URBAN AGE
Scrapbook of Unlikely Friends

Diagramming where we are, how we got here, and what climate change and urban design can offer each other.
FUNCTION

*FUTURE EARTH CATALOG* functions as a discovery tale through diagrams and primary sources of the development of climate/risk and its implications for cities. A proposal for an expanded role of urban thinkers, practitioners, and futurists in mediating climate for a risk society and inspiring social action.

PURPOSE

To reveal the limitations of media, politics, and science in shaping both public perception of climate & social response to risk and how the skills of planners/designers can be leveraged to address both by considering them together.
What is the AGENCY of visionary planning in shaping the collective conscious AND inspiring social action in climate change?
Two Limits in Climate Change

the need for a revisionist history and an expanded role

Urban Design

Contemporary urban design practices engage with climate change, and more specifically, coastal resilience, as a rhetorical device to reinforce the status quo. The role of urban design is passive—consumers at the end of the line that natural science conceptualizes, climate science and engineering defines, and government will implements. The limited toolkit of seawalls, berms and levees is inherited. I offer this to ask: how did we get here and what more can we do? How can we innovate — not only in physical projects and innovation, but in addressing the root that defines what the status quo is, and who resilience is for?

Narrative Tropes

physical planning

representation
The tools we use to guide resilience

"downgrade the potential agency of human beings to interpret, learn, and change."

Goldstein, 2011

"Popular imaginations and news media are much less likely to reflect the slow and insidious changes of delayed effects and their victims than the accident and its immediate, visible impacts."

Lindstrom, 2016
I am constantly thinking about how what I have learned about climate change, through this course and through my thesis research, has changed my perspective — and how I can convey that to people who care but don’t have the luxury to read about this stuff all day long. There is simply too much to know! I asked a few friends of mine, not in the academic world, why they think people don’t talk about it enough. The consensus was it’s intimidating, because people know that they don’t know enough. “It’s like jazz music. You feel like you need to be part of the club.”
It is what it is
Narratives to Deconstruct

"resilience"

the apocalypse

the politization of science

the ways an individual can "do something about it"

Narratives to Construct

adaptation, mitigation, transformation

worlding worlds

science as a learning tool for the Earth, and science as a speculation of an uncertain future

the ways an individual can "do something about" climate change
**Framing**

**Tools**

**Advocacy**

*stewardship of living things, public interest*

**Science**

*climate science, climate models, natural science*

**Scenario Planning**

*collaborative governance*

**Data**

**Representation**

*imaging for multiple audiences / interests*

**Narrative**

**Mediation**

*across many disciplines*

**Fiction**

*worlding worlds, visionary thinking, speculative fabulation*

**Systems-Thinking**

*at many scales in time + space*

**Stories**

*history as a tool for “imaginative analysis of future histories”*
global phenomena scaled to everyday life / environments

"design science fiction" / worlding words

operative strategy / reflexive thinking (risk society)

social, ecological, political, cultural definitions of resilience

go-earning through storytelling
Watching the glaciers melt for the first time, and giving it scale
Climate Change is Mediated

it is beyond human perception, so we can only know it through mediums

Gap between PHENOMENON + THING

"I can think + compute climate, but I can’t directly see or touch it."

"I can’t locate the gap anywhere in my given, phenomenal, experiential, or indeed scientific space"
The very concept of CLIMATE is an abstraction, a human rendering of data over time which cannot be observed in and of itself.

Nicholas Mirzoeff

Author, *How to See the World*; visual culture theorist and professor in the Department of Media, Culture and Communication at New York University
it is mediated through

**THREE PILLARS OF PERCEPTION**

Science is not great at communication

"The God trick of seeing everything from nowhere."

selective hearing of science research in policy

history of government control over research

Max Moinan 180524

435
I, POLITICS, politicize the science in the media. Public interest dictates which stories are told and how they are framed. The Creation of Energy Culture connects to the MEDIA, which frames the narrative. Public interest dictates how the science is presented in the media.
James Hansen

Head of the NASA Goddard Institute for Space Studies, Climatologist, Director of Program on Climate Science, Awareness and Solutions at the Earth Institute, Columbia University

Well, I think that-- What I'd like to say is that, frankly.

I would rather do my research than be interviewed for TV.
I suggest that this simple little diagram-machine is a beginning geometry for sketching some of the multiple ways that anti-colonial and feminist discourses speak to each other and require each other for their own analytical progress. One can work one's way through the analytical/descriptive bush, making decisions to exclude certain regions of the map, for example, by concentrating only on the global dimension of a political aspect of a particular local experience. But the rest of the bush is implicitly present,
Hurricane Sandy

Film Stills, Merchants of Doubt (2014) Directed by Robert Kenner based on Naomi Oreskes' and Eric M. Conway's 2010 book by the same name.
National Perception of Risk

*Do you believe global warming is happening?*

NYC 83%

*Are you worried about it?*

NYC 75%

*Do you think it could harm you personally?*

NYC 48%

Yale Program on Climate Communication. *Climate Change in the American Mind.* October, 2017.
Think Locally
Act Globally

THINK GLOBALLY
ACT LOCALLY
One of the reasons why we feel so powerless when asked to be concerned by ecological crisis, the reason why I, to begin with, feel so powerless, is because of the total disconnect between the range, nature, and scale of the phenomena and the set of emotions, habits of thoughts, and feelings that would be necessary to handle those crises—not even to act in response to them, but simply to give them more than a passing ear.

Bruno Latour
Is + Ought

"not just to talk about what is, but also what ought to be"
Schon + Rein, 1975

Climate change is problematic: "it divorces is from ought"

... it "detaches global fact from local value, projecting a new, totalizing image of the world as it is, without regard for the layered investments that societies have made in worlds as they wish them to be."
Jasanoff, 2010

Collaborative Storytelling


"both descriptive + normative, making sense of the world while providing guidance for change amidst turbulence and uncertainty."
Goldstein, 2011
Coastal Resilience Projects

Green and gray infrastructure projects for coastal resilience are critical in the near term to buy time. Urgency is dangerous because times of shock and instability evoke fear and quick fixes. But why do we seem to be limited by a toolkit of design playing defense - as armor against threat, and what is it we are choosing to protect?

"Where should the seawall go?"
Seawalls protect property interest and opportunity by delaying risk to a distant future

Is it just me or are all the options kind of the same?
Max Moinian
180226
Journal 2: Constructing a Climate Knowledge

'Without models there are no data'

"When you have gone deep enough, you may surrender your Cartesian dreams of total certainty in favor of trust founded in history, reputation, and fully articulated reasoning."

The Edward's A Vast Machine really expanded my understanding of scientific modeling. I have been making the argument that uncertainty/probability built into models is problematic. I think FACT and DATA often get simply conflated, which skews people's perception of climate knowledge. Fact is what we can observe in the real world. When you process, synthesize or predict with facts, you get data.

In my thesis conversations I've been told I sound like the right, or I'm promoting an idea of fake news. I want to be very careful in this territory. I am not saying models are bad, but that we will trust the data and use it in a meaningful way if we better understand it's limits.

I like his concept of shimmering: the reverberation of data images. I'd like to explore this further. Is our trust affected by the fact that all of these bites of information seem to be different?

....When, he is arguing, they are all building off each other and generally saying the same thing. I appreciate the way he frames climate knowledge — in a way he is making me more forgiving of my frustrations with it. Perhaps that is because I have been so focused on understanding the harm it causes without knowing what the science is trying to do in the first place. The next investigation I'd like to go on regarding trust is how politics messes with the data (he notes that he doesn't get into this, but offers some good books).

That seems to be the middleman where harm happens.
“Only a crisis actual or perceived produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around.

That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable.”
“Everyone knows that all life requires energy. But we rarely consider how
dependent art and culture are on the energy that is needed to produce, practice
and sustain them. What we fail to see are the usually invisible sources of energy that
make our art and culture(s) possible and bring with them fundamental values that
we are all constrained to live with (whether we approve of them or not).

Coal brought one set of values to all
industrialized countries;

oil brought a very different set...

I may not approve of the culture of
consumption that comes with oil...

BUT

I must use it if I want to do anything at all.”
Arguably the strongest voices in activism?

The importance of balancing science with local knowledge

Science knowledge as a "social prescription, without any interest or negotiation over its validity or acceptability"

not reflexive!

"A reflexive learning process would have recognized the conditions underpinning the scientific conclusions, drawn out the social situational questions which they implied, and examined these with the benefit inter alia of the different forms of knowledge held by people other than scientists."
The GOAL is neither...

to force glaciologists to believe that glaciers listen

NOR

to make indigenous people put their full faith in scientists' mathematical equations + computer-generated models

RATHER

the goal is to understand that environmental knowledge is always based in systems of power discrepancies + uneven social relations

AND

overcoming these discrepancies requires accepting that multiple knowledges exist and are valid within their own contexts.
Emotion

Emotional learning is reasonable

Emotion can

"tell us about a way of seeing"

is "unique among the senses because it is related to cognition"

The emotional system is what moves us to action

.... or not

Sherry Nicholson
“To be conscious in the world today is to be aware of vast suffering and unprecedented peril.”

“An art of living.”
“A way of adapting, of defending oneself in a situation that is utterly overwhelming and where there is no end in sight.”

“Apathy is the mask of suffering.”
What if we shift from a symbolic & metaphoric definition of human action to a literal one? After all, this is just what is meant by the anthropocene concept: everything that was symbolic is now to be taken literally. Cultures used to “shape the Earth” symbolically; now they do it for good.

Bruno Latour
Social Action

failure of public response to “do something about it”
contradiction between knowledge and action

\[\text{NOT}\]

“INFORMATION DEFICIT MODEL”

finite pool of worry

\[\text{BUT}\]

“SOCIAL ORGANIZATION OF DENIAL”

“we live in one way, and we think in another. It’s a skill, an art of living.”

cognitive traditions
“Sometimes scientists and others who think, read, study, agitate, and care know too much, and it is too heavy.”

“Alone, in our separate kinds of expertise and experience, we know both too much and too little, and so we succumb to despair or to hope, and neither is a sensible attitude.”

Haraway p. 4
Failure of the Apocalypse Narrative

The idea of the “End of the World”

"the being that we are supposed to feel anxiety about and care for is gone."

full ecological coexistence requires squashing the “unless we act now” narrative

“The ultimate environmentalist argument would be to drop the concept of Nature + World, to cease identifying with them, to swear allegiance to coexistence with nonhumans without a World, without some nihilistic Noah’s Ark.”

Timothy Morton, Hyperobjects
but what is the appropriate level of shock + anxiety?
When you're hitting it from behind and she moans "Colonization of Mars can be achieved in the next 30 years."

@elonmusk
You may surrender your Cartesian dreams of total certainty in favor of trust founded in history, reputation, and fully articulated reasoning.

Paul N. Edwards
VICE: Has Exxon Mobil misled the public about its climate change research?
Energy

COAL

OIL + GAS

RENEWABLES
"The climate crisis is also a crisis of culture, and thus of the imagination."
We cannot see past the energy system we operate in. I believe that the age of production, followed by the age of consumption, will be followed by stewardship. My aim is to do my part in getting us there sooner.

Culture

PRODUCTION

"I am what I make."

CONSUMPTION

"I am what I buy."

STEWARDSHIP

"I am what I conserve."
mahmo sometimes I love America sometimes I just don't get what it is

View all 2 comments

MAY 29, 2016
"SF is a sign for science fiction, speculative feminism, science fantasy, speculative fabulation, science fact, and also, string figures."

"Science fact and speculative fabulation need each other"

Haraway, Staying with the Trouble, p. 10, p. 3
Science Fiction

Speculative Fiction

Speculative Fabulation

Science Fact

So Far
“arc”

conflict  resolution

crisis
"panarchy"

past

revisionist history; reframe the narrative

present

future a

mitigation

future b

adaptation

future c

transformation
“Design Science Fiction”

“the epistemological boundaries separating fiction from non-fiction are far more porous than often recognized.”

the boundaries are breached in:

- planning
- architecture
- science fiction

Stephen Graham
strong VISIONARY element

speculative design is a form of fiction

real v. representation

is blurry today

art + fiction

are serious and powerful tools
MAPPING

A world derived from cultural invention

“A fantastic cultural project,
creating + building the world
as much as measuring + describing it.”

“Unlike the scientific objectivism that guides most modern cartographers,
artists have been more conscious of the essentially fictional status of maps
and the power they possess for construing and constructing worlds.”

James Corner,
Agency of Mapping
Donald Winnicott

space of play must remain beyond the reach of the empiricist question

“did you find that (in the real world) or did you make it up?”

... this denies imagination

Jean Baudrillard

“the late 20th c. communication and information technologies have produced such a blurring of what is real and what is representation that the two can no longer be distinguished...
... the act of differentiating between the real and the representation is no longer meaningful.”
WORLD COVERAGE

MAPS ARE WEAPONS

National Security demands ACCURATE MAPS

MAP-CHART DIVISION
HEADQUARTERS ARMY AIR FORCES
Collaborative Storytelling

Planning is persuasive storytelling
Throgmorton, 2003

Crafting the narrative builds a shared vision
stories can be used “in the service of change, as shapers of a new imagination of alternatives”
Sandercock, 2003

The tools we use to guide resilience
“downgrade the potential agency of human beings to interpret, learn, and change.”
Goldstein, 2011
Planning

Authoritative guidance (disaster capitalism)

means for communities
to create/tell many stories
+ weave together a collective life
out of their authentic lived experience

Narrating Resilience: Transforming Urban Systems
Through Collaborative Storytelling

Brian Goldstein
Scenario Planning

A diagram of scenario planning's core elements. A client, represented by the foregrounded figure, faces a field of options explored by the scenarios before overcoming a foreseen challenge, represented by the mountainous form, to...
Scenario planning's process can be simplified to the following five steps:

1. Define the scope of the speculation.
2. Establish what the expectations and biases are.
3. Define the trends that can be drawn upon and the uncertainties which must be accounted for within the speculation.
4. Produce the speculations.
5. Define actionable strategies and tactics informed by the scenarios and identified forecasts or trends.
“Change the story, and you change the city”

“People act out the stories they tell about the city, and fashion the city upon these stories”
"We were frustrated with our government, and I felt if the media isn’t getting to the population about climate change, maybe Leonardo can,” said Stevens. “So the message is, it’s up to all of us. It’s a simplistic message but it really is.”
UTOPIA
OF
FORM
PROCESS
WORLD
YOUR WORLD:
NEW YORK 3000
OTHER PEOPLES PLACES

THERE ARE MANY WAYS OF DOING...
THINGS..... BESIDES YOUR OWN

1968. Spread from the Whole Earth Catalog.
Storytelling Speculative Scenarios

Prompts, games, and activities for professionals and for people to world your own future New York.
FUNCTION

The *FUTURE EARTH CATALOG* functions as a playbook for visioning through ideas that are not limited by present barriers (both real and perceived).

An optimistic call to action *today* that does not recognize hard boundaries between (science) fact / (speculative) fiction real / representation data / projection.

PURPOSE

To connect the scientific and non-scientific speculations of the future. To form an approach that is process (not product) oriented,

so that people build knowledge together and consider multiple possible futures.

There is no silver bullet solution. We might as well find silver linings in the uncertainty of our Future Earth.
touching."

**Back Story**

Our *recent back story* on the dispute about who was first to reach the North Pole looked at Adm. Robert Peary’s expedition in 1909.

What it didn’t mention were the people with him, specifically Matthew Henson, who was hired as Peary’s valet but became an invaluable navigator and interpreter.

In the decades after the expedition, the roles of Henson and the party’s four Inuit members — Ootah, Seeglo, Egingwah, and Ooqueah — were played down.
“I’d put my money on the sun and solar energy, what a source of power. I hope we don’t have to wait until oil and coal run out, before we tackle that.”

Thomas Edison, 1931
As cited in Rebecca Solnit's book Hope in the Dark
First they ignore you. Then they fight you. Then they laugh at you. Then, you win.
Illustration by Feifei Ruan
HEAD DAMAGE
Batman Forever, 1995
Judge Dredd, 1995
X-Men, 2000

DECAPITATED
Deep Impact, 1998
Clerkfield, 2008

SUBMERGED
Deluge, 1933
Artificial Intelligence, 2001
The Day After Tomorrow, 2004
Ice Age, 2011

THE STATUE OF LIBERTY
Manhattan

Design science fiction has been fixated on the city. From Viele's double-decker streets, New York World's illustrations of the future city, Hugh Ferriss' dramatic renderings of megastructures, and Hood's city bridges creating life above the water, to Wright's Ellis Island, Le Corbusier's Radiant City, Fuller's dome over midtown, Superstudio's Continuous Monument and Rudolph's LOMEX. Architects and illustrators manifest visions of the future through Manhattan. As designers, these projects world worlds with drawings. As citizens, the projects reflect on technology and society and express hope and fear through utopia or dystopia.

Science and popular fiction has done the same thing for the masses. Max Page states that "Americans have been imagining New York's destruction for two centuries." Gernsback's Amazing Stories, Godzilla, Superman, Batman, Final Fantasy, and the Day after Tomorrow, to name a few. Writers, illustrators, and filmmakers channel fantasy and fear through the wrecking of American progress' most physical form.

New York City is positioned in the tension between designer and citizen. Events like the World's Fair popularized the concept of utopia, Robert Moses and Jane Jacobs' legacies raised issues of citizen's rights, power of authority, and participation. 9/11 highlighted the importance of design and community engagement in rebuilding the image of the city, and Hurricane Sandy elevated the civic responsibility of urban design in "building it back better.” The current federal, philanthropic, design, and artistic investments in worlding the future of Manhattan raise question of the role of the public in deciding what the future of the city should be. The history of imaging New York offers a wealth of inspiration for deciding what it should look like.
"Man refused to be vanquished. He came out to defy the storm..."

"New York, like the victim of an outrage, goes about freeing itself from its shroud."

"The Boulevard City"

New York's Spectacular Surroundings
A Layout of Addresses
A Layout of Addresses

1888

THE WORLD'S FAIR 1939

CHANGING NEW YORK
BERENICE ABBOTT
The eye

The eye does not see things
but images of things
that mean other things

He knows it is a city
but he thinks of it as a
Vessel
that will take him away
Illustration by Feifei Ruan
THE BROOKLYN BRIDGE

TRAMPLED
Zombie II, 1979
Godzilla, 1998

BURNED
The Dark Knight Rises, 2012
SEAWALLS are 12 ft high which is the projected rise by 2050.

WAIT what happens after 2050?
1906

First aerial photograph of Manhattan

Coney Island Tower, 1907
New York as it will be in 1999, published in the XXX newspaper in 1900.

43rd & 5th, 1900

43rd & 5th, 1900
You don't need to be in space to see the Earth.
What SHOULD it be?

THINK we must!

What will it be?
“It matters what worlds world worlds”
Later, we would open that door when we needed comfort. We could enter and spend an eternity there.

The sun was setting.

Camille was watching the line of buildings light up in front of us.

People were jogging.

A few boats floated down the river.
When was the last time you went outside to check the weather?
New Yorkers stand out in their stance on climate change.

We can be leaders in adapting to a changing environment and mitigating risk and environmental degradation.

Sandy is still left unresolved. The urgency for protection prompted the formation of Rebuild by Design and showed how communal efforts — from federal, state, local, and philanthropic organizations to engineers, planners, designers, and the communities themselves — can lead collective responses after catastrophic events. The lines of defense buy us time, and civic engagement is a useful tool for informing the public. But what happens when the water rises over the seawalls? Who and what is still missing in the conversation?

How can we use our firsthand experience with a disrupted and disruptive climate to revise what we thought we knew and move forward meaningfully? Reflexive society -- revisionist history -- breakdown narratives to reassess limits/opportunities for a way forward...what we thought we knew, learn again, and move forward with a capacity for meaningful change, driven by an reflect

address the risk our future city faces,

and address preparedness and responsibility? How can New York make a greater contribution to the discourse and action on climate change mitigation and adaptation?

Sandy brought us together but also raised slow-accumulating social, economic, policy, and development issues. Naomi Klein writes about how disasters are used as opportunities to slip in capitalist agendas. We can flip this tactic on its head. The moment of vulnerability and shift after a disaster can lead to positive outcomes. Explore how solutions to other issues can piggyback off of a resilience agenda.
NEW YORK'S FUTURE IN A CHANGING CLIMATE

FUTURE CITY LAB NY AT ITS CORE

A new series of conversations inspired by the Future City Lab.
The Goddess, FEMAL" "The God, R. MOSES

WHERE should we go now?

JERSEY

STATEN ISLAND

BROOKLYN
MANNAHATTA
Photo: Liz Koslov

Gov. Cuomo
"Mother Nature wants her land back."
Buy us out and give it back.
\[ X + Y + Z \]

- Need for Energy
- Earth's Resources are Finite
- Healthy People + Planet
PICTURE ONE

The Future without Oil
PICTURE TWO

Business as Usual
PICTURE THREE

Some Adapt, Some Don’t
Department of the Earth, USA

This doesn't exist, but what if it did?
2007. Image from Diesel clothing brand's ad campaign, "Global Warming Ready!" Tagline, "GLOBAL WARMING CAN'T STOP OUR LIVES!"
2006. Image from *Vanity Fair* article, "While Washington Slept." Original image by Cameron Davidson; illustration by John Blackford.
IT IS IMPOSSIBLE

TO HAVE VISION FROM

EVERYWHERE

AND YET,

FROM NOWHERE
WORLD YOUR WORLD