

UC San Diego

UC San Diego Electronic Theses and Dissertations

Title

Damage Report

Permalink

<https://escholarship.org/uc/item/79q2s0gw>

Author

Kihn, Edward

Publication Date

2014

Supplemental Material

<https://escholarship.org/uc/item/79q2s0gw#supplemental>

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Damage Report

A Thesis submitted in partial satisfaction of the requirements for the
degree of Master of Fine Arts

in

Visual Arts

by

Edward O'Keefe Kihn

Committee in Charge:

Professor Mariana Wardwell, Chair
Professor Louis Hock, Co-Chair
Professor Brian Cross
Professor Catherina Gere

2014

Copyright

Edward O'Keefe Kihn, 2014

All rights reserved

The thesis of Edward O'Keefe Kihn is approved and it is acceptable
in quantity and form for publication on microfilm and
electronically:

Chair

University of California, San Diego
2014

EPIGRAPH

Horst: “How could predicting novel market behavior be the same as predicting a terrible” disaster?”

Maxine: “If the two were different forms of the same thing.”

—Thomas Pynchon *Bleeding Edge*,

“Whoever imagines disasters in some way desires them”

—Theodor W. Adorno

TABLE OF CONTENTS

| | |
|---|------|
| Signature Page | iii |
| Epigraph..... | iv |
| Table of Contents | v |
| List of Figures..... | vi |
| List of Supplemental Files..... | vii |
| Acknowledgements..... | viii |
| Abstract..... | ix |
| 1. Beginnings..... | 1 |
| 2. Scripps Institution of Oceanography (SIO): Hydraulics Laboratory | 7 |
| Structure: Soundtrack..... | 13 |
| Method: a cinematic quasi-ethnography? | 18 |
| 3. EarthriskTechnologies, Inc..... | 19 |
| Structure: Night and Day/Mobile and Static | 23 |
| 4. Englekirk Center..... | 25 |
| Structure: Installation | 36 |
| 5. Heartland Fire Training Facility..... | 37 |
| Post-Script: Ruins-to-be | 44 |
| Project Excerpts/Documentation..... (See supplemental files) | |
| References..... | 47 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1: Fog engulfing the Jewel..... | 6 |
| Figure 2: Dr. Munk, demiurge of the waves..... | 11 |
| Figure 3: Damage..... | 17 |
| Figure 4: Earthrisk’s dry-erase oracle..... | 21 |
| Figure 5: The “unheimlich” soft-story house..... | 28 |
| Figure 6: Cause for celebration..... | 34 |
| Figure 7: The “classroom”..... | 41 |
| Figure 8: “What will have been”..... | 44 |

LIST OF SUPPLEMENTAL FILES

| | |
|--|------------------|
| Video documentation of installation..... | DR_document.mov |
| Still of Installation (beginning)..... | DR_Document1.tif |
| Still of installation (middle) | DR_Document2.tif |
| Still of installation (end)..... | DR_Document3.tif |

ACKNOWLEDGEMENTS

I would like to acknowledge, in no particular order, the following individuals and organizations for their help in realizing this project:

The Scripps Hydraulics Lab: Grant Deane, Dale Stokes, James Uyolan, Dave Aglietti, Charles Coughran. Earthrisk Technologies Inc.: Steve Bennett, Shannon Casey. The Heartland Fire Training Center: Capt. Dave Miller. The UCSD Englekirk Center: Pouria Bahmani, Robert Beckley, Prof. John van de Lindt, Hector, Alex Sherman, Lawton Hughes, Paul Greco. The Staff of the UCSD Media Center: Mitchell Wright, Adriene Hughes, Lev Kalman, Joe Buckley. Crew: Bill Perrine, Nate Elegino, Ryan Washburn, Rick Bowman. Construction: Noe Olivas, Rafi Kopacz. Visual Arts Tech: Tad Linfesty. Comrades and Immediate Family: Mariana Wardwell, Katrin Pesch, Tim Ridlen, Alex Kershaw, Jaekyung Jung, Cecily, Michael and Tommy Kihn, Silvia Kolbowski, Chris Kardambikis, Melinda Guillen, Mike Crane, Ana Miron. Kickstarter supporters: Michael, Andrea, Joey and Matthew Corcoran, Ellen Burbank, Constance Dry, Kathleen Fluegel.

ABSTRACT OF THE THESIS

Damage Report

by

Edward O’Keefe Kihn

Master of Fine Arts in Visual Arts

University of California, San Diego, 2014

Professor Mariana Wardwell, Chair

Professor Louis Hock, Co-Chair

Damage Report is a series of four short 16-millimeter films, projected simultaneously in an installation, each of which focuses on one of the four elements—air, water, earth, and fire. The geographic focus is the so-called “Biotech Beach” area around La Jolla, California where scientists and emergency managers assess the risks of natural hazards—fires, earthquakes, weather patterns, climate change—through simulations.

The project calls attention to the paradox of our intensifying search for control over the elements in an era in which we have become a geological force: the “anthropocene.”

Each element has its corresponding site, which together form a square on the map of San Diego County:

- a downtown weather forecasting startup originating in UCSD’s Scripps Institution of Oceanography,
- a hydraulics lab nestled in the latter’s idyllic beachside campus,
- the University’s inland earthquake simulator at Englekirk Center, and
- a fire training center in the County’s “Heartland,” El Cajon.

Each film deals with a test, or series of procedures by which a given element is simulated in a controlled setting: a laboratory, an office, or an outdoor training ground.

1. BEGINNINGS

1.1 Emeritus

“It’s true, we manage risk like nowhere else.” So sums up an Emeritus faculty of UCSD’s Rady School of Management as I sit bleary-eyed in his office overlooking the Eucalyptus grove on the northmost quadrant of the University’s campus. It’s early for me, 9am, and I’ve been trying, in a sort of extemporaneous ramble (i.e. unsuccessfully to ears filtering out all frequencies but those of concision) to explain a film I’m working on concerning this ever-present but amorphous subject—risk management, and the many forms it takes in the area. Trying to get at my intentions, or at least align them with what he probably hopes they are, he has shown me a trailer of a film called “Venturetown USA.”

The “film” appears to be less that than a feature-length infommercial on the culture of venture capital in the area. Entrepreneurs in local biotech and hi-technology describe their experiences starting and growing businesses in “high-risk” (i.e. capital intensive, with high probability for failure) fields. Images of such luminous sights as the harbor and the Salk Institute at sunset, are accompanied by glorying corporate synth: the namesake of the Jacobs School of Engineering effuses about “sharing” his products with consumers; another man, ostensibly involved in women’s beauty products, praises “winners” as those who “make it happen” and denounces the “losers” as those “who let it happen.”

In this bootstrap binary, the Emeritus, I think, has pegged me as the latter, although

he perhaps sees in me a bit of an “outlier”¹: one of those unexpected, improbable opportunities that might pay off wildly—with a fantastic audiovisual paean to the culture of speculation in the area? Or maybe it’s just to test whether I’ll “let it happen”—whatever *it* is. He tells me that he can introduce me some VC high-rollers in “the biotech space”—one in particular whose name I can’t recall. “But you’ve got to pitch it right” he says, and adds a warning: if he introduces us “you’d better have your shit together.” Otherwise this Very Important Person will “chew you up and spit you out.”

Apologizing for my foggy and bedraggled “presentation” I left, saying I would follow up. But I haven’t, and, thankfully, the threat of full-body mastication never materialized.

1.2 “Risk Culture”

Almost thirty years ago, in an oft-cited text, the German sociologist Ulrich Beck described our epoch as one characterized by “risk societies.”² These are societies in which, among other things, the proliferation of technology has created an unprecedented potential for non-linear accidents.

¹ The “quant” turned-armchair philosopher for the “risk-taking” jetset, Nassim Taleb uses this term to describe events that cause a sea change precisely because of their outlier—i.e. off the radar, unpredictable—nature (e.g., 9/11, The Great Depression). He calls the event constituted by such an outlier a “Black Swan.” See: Taleb, Nassim. *The Black Swan: the impact of the Highly Improbable*. New York: Random House, 2007.

² Beck, Ulrich. *Risk Society: Towards a New Modernity*. London: Sage. 1992.

According to Beck, this potential issues from the fact that, in “risk society” the mounting, overlapping and globally uncoordinated responses to accidents develop a logic of pre-emption and precaution to guard against accidents. The practice of pre-emption and precaution, in turn, opens a Pandora’s box of unknowns so unleashing potential for more accidents, possibly of nature and scale heretofore unheard of.

The project began with a gradual recognition of this particular Social sub-region as an exemplary “geography of risk”. A preliminary investigation led me to several sources representing a number of concrete subfields of this rather all-encompassing subject. These sources included the aforementioned emeritus-VC, a genetics counselor, the head of emergency management at UCSD, and the head of a new “Center for the Future of Surgery”. My first idea was a short feature on such local implementations of risk management shot on 16mm film.

Yet, these operations lack a direct physical tie to the local geography and so might not illuminate the question of why this “culture of risk” took such hold in Southern California and San Diego in particular. An answer, at least as to the former, is offered by the sociologist Charles Perrow:

...economic policies, such as the location of defense industries, the diversion of water to wasteful agricultural practices and to cities built on the barren (but sunny and warm) coastline, and ample cheap migrant labor—all this has meant that the area has become vulnerable to rainstorms and mudslides, floods, polluted land and air, wildfires and made moderate earthquakes more destructive. Economic policies that are made possible because of political power have wrought the damage. The culture that grows in southern California... evolves out of these policies; the people moving there did not come with a Risk Culture, any more than those who settle on the flood plains of Mississippi and drown.³

³ Perrow, Charles. “Culture, Structure, Risk.” In *Risk Society and the Culture of Precaution*. Eds. Sabine Berking. Basingstoke: Palgrave MacMillan, 2006. p. 51.

1.3 Cartography

Indeed, one of the few moments of intrigue in the constellation of San Diego-La Jolla, is the tension between its unruly physical geography and outwardly unperturbed exurban development. From the mesas of La Jolla, where the temporarily stilled geological tumult of eons gives the lie to the apparent stability of corporate parks and mega-mansions, to the fire-conducive chaparral-dense mountains of El Cajon, to the elevated freeways that cross dormant fault lines—the city as a whole suggests at many junctures, if not a willful flouting of material reality, an anarchic attempt to make it over in an image suited to the necessarily optimistic precepts of business.

If the city's Mediterranean clime, furthermore, has served as a balmy boon to its development—for instance, early on, in helping decide a young Franklin Roosevelt to select it as the site of the biggest Naval Base on the West Coast—the sun also brings contradictions outdoors where they can be more easily seen.

1.4 Risk culture & the elements

As I was not attempting a sociological account, except in the most indirect audiovisual manner, what approach would allow the Social risk culture to show itself without having to explain it? And, equally as important for the project, how to keep the all-absorbing problematic of risk, from spiraling out of control?

If in Social, and particularly San Diego, a culture of risk, had formed itself in the willful and fortuitous collisions of human actors with geography and weather—what we still refer to as “the elements”—why not approach this culture through that very

elemental framework, the one first unfolded in the Pre-Socratic cosmology, the *ur-mythology* of worldly creation?

This framework would not be used to argue for an unmediated return to worship of mysterious cosmological, or even natural, forces but rather to explore the intersection of risk, place, technology and ideology.

1.5 Actually...

I pretend it was this logical, but in fact these decisions were made intuitively. It seemed at some point that a framework would have to impose itself and that what I was driving toward were the local environs, albeit mediated, disenchanting, denatured: it was the ocean that I rarely visited, the mountains I only saw in the distance, the fire that spread through stories about 2007, and yes, the closest of the intangible-tangibles: the vapor that came unannounced and gently swallowed the whole place up.



Figure 1: Fog engulfing the Jewel

2. SCRIPPS INSTITUTION OF OCEANOGRAPHY (SIO)/ HYDRAULICS LAB

2.1 Marine layer

Anyone who's spent time in the area is familiar with the fog that suffuses the city, but especially its beachfront climes, at unpredictable intervals. This fog, a.k.a. the marine layer, became for me an elemental emblem of uncertainty: materializing in a moment, it clouds vision, enshrouding swaths of techtopian La Jolla in a primordial mist like the off-gassing of some prelapsarian soup.

I spend combined hours chasing this fog, trying to intercept it, know its future path. I want to film it, of course. I share Tarkovsky's enthusiasm for the image of water as the exemplar of movement and change itself — "I can't imagine a film without it" he says.¹ Which seems to hold no less so for the curling tendrils of its vaporous incarnation.

But this fog's origin proves unknowable: obscure in the same way fog obscures the landscape. At best I could stay up till the sun rose, after a night where the fog slid in, or otherwise be caught up, unawares, in its slow suffusing creep some afternoon. It was only with a certain amount of irony, then, that I found myself engaged in some kind of implicit "critique" of the technical ideologies of speculation and forecasting, while I sat waiting for the pixels on the screen to rearrange themselves into a favorable forecast....which nonetheless wouldn't pan out. Chasing the elusive image was both a literal practice and an allegory of the project.

¹ Dalle Vache, Angela. *Cinema and Painting*. University of Texas Press, 1996. p. 136.

2.2 Biological Grade/Hylab

Perched on the Biological Grade, typically below where this floating cauldron extends its touchless caress to the hillsides and ravines, is a wood structure the length of a soccer field with an undular roof. Inside the hangar-like expanse of the Hydraulics Laboratory (aka the Hylab) objects whose provenance spans from the time of the Johnson Administration to today jostle for space and attention.⁵ The cavernous wooden frame is itself decidedly late 60's, from the first years of the University, when was also constructed the primary object of attention and scrutiny: the Wind Wave Channel.

2.3 The Wind Wave Channel

The channel is a horizontal tank, which, at 44 meters, runs the entire length of the building. Its electronically controlled flume and rudders combine to simulate what Grant Deane, the head of the Hylab, calls the “biggest interface on the planet”— that between the atmosphere and the ocean.

As Deane explains, the idea of simulating real world phenomena isn't new. What's new is the complexity with which we are able to do so. Of all of the simulators, Deane is the only one to use the term “emergence” in the sense of a complexity that

⁵ This is hardly an efficient use of space. Or is it? Grant Deane, the head of the Hylab, tells me that while he's engaged in a serious cleanup effort the lab can't afford to discard too much material from past experiments as it might prove useful for future ones. This fact is perhaps only worth noting inasmuch as it illuminates the financial tightrope the somewhat atavistic hylab must walk in order to keep its doors open. Like many laboratories whose results are not immediately profitable, the Hylab has been affected by the declining funds from public agencies in recent years. In order to offset costs, part of the lab's function is thus as a spare parts depot for the larger SIO and, one gathers, private contractors. Interview with Grant Deane 6/11/13.

“emerges” out of the confluence of multiple variables (in this case wind and water). At Earthrisk the term used is “chaos effects,” at Englekirk “non-linear” behaviors. All of the simulations in some way work with a “stochastic” process where complete control eludes the simulator, where the thing attempted to be conjured and controlled, is, paradoxically, unpredictability itself.

While computer models are getting better and better at simulating the variables involved in these processes,⁶ Deane explains that they still can’t account for anything like the real complexity of a cross section of the ocean. Instead he and his team use the 60’s-era wooden oars and flume to approach the complexity that is produced in the meeting of the atmosphere and the sea. From such test samples they hope to “count all of the bubbles in the ocean” in order to understand how aerosols move between it and the upper atmosphere. This, in turn—ideally at least—will help experts in the field of climate modeling create more accurate representations of weather and climate.

2.4 Dr. Munk

6/11/13:

We’ve been waiting for probably an hour for Deane’s team to start up the channel, but given some technical snags, the tests have been delayed. In the meantime we—me and my stalwart crewmember—film some exteriors from higher up on the Biological Grade, along La Jolla Shores Drive, where a group of Mexican landscapers is

⁶ *Simulation: Pragmatic Construction of Reality*. Eds. Gunter Koppers, Terry Shin. Springer 2006. p.14.

raking in a layer of mulch along the ridge adjoining a newfangled Marine Ecosystem Sensing, Observation and Modeling Laboratory.

When we get back, the test, or at least the channel, is already running. This time the waves are white as they are blue, thick with bubbles from newly piped-in saltwater. In front of the channel is assembled a host of new spectators with whom Deane's team is discussing the details of the test. One of the guests, an elderly man in a burgundy sweater perched on a table, stands out. The others swirl about him in eager conversation. Gazing contentedly at the waves the elderly man occasionally pivots his head to engage them.

"I didn't know the Navy had an interest in waves" Deane remarks cheekily to this apparent guest of honor. He says something back that I don't catch. My single crewmember thinks he knows the identity of the esteemed interloper. Incredulously, I reply "He's dead isn't he?"



Figure 2: Dr. Munk, demiurge of the waves

2.5 “We stand on the shoulders of giants”

Later, as I transcribed audio from that day, including the above acknowledgement by Deane to Dr. Walter Munk, the man in the burgundy sweater, I began to understand his importance for oceanography.

It was perhaps the development of sonar that, once the long-vexing problem of sound interference of snapping shrimp had been solved⁷, had the most impact on newly expanded sub-surface warfare. However, it was the novel techniques of wave forecasting, which Dr. Munk helped develop with Scripps’ Director Harold Sverdrup,

⁷ *Scripps Institution of Oceanography*. Raitt, Helen and Moulton, Beatrice. The Ward Ritchie Press. 1967. p. 138.

that allowed numerous Allied landings in the Pacific, North Africa, and the European theaters (although, what I gather from the apocrypha is that Eisenhower ordered the assault on Normandy Beach *against* the advice of the team of Scripps wave modelers).⁸

The appearance of the somewhat frail eminence grise in the Wind Wave Channel served as a reminder of Scripps's function in the post- and cold-war periods as one of the wellsprings of science and policy in the area. As Ronald Rainger points out, the stewardship of another figure, Roger Revelle, was pivotal in establishing a synergy between government-funded Naval R&D, private enterprise and, beginning in the mid-to-late 50's, the idea for a new campus, which, alongside accommodating California's explosive post-war population growth, would be a center for the training of (mostly physical-) scientists and engineers.⁹

No surprise, at Scripps, and to greater or lesser degree with all of the sites I dealt with, this techno-military behemoth looms. Which seemed to beg a rather obvious question for Deane who, in an interview, displayed a certain querulousness toward climate deniers as those beholden to "opinion" rather than "facts", the two terms that he corollated, respectively, with "democracy" and "science." In short: democracy is the reign of opinion while science hews to hard and unimpeachable fact.

Hearing it put this way, I felt my own querulous itch: doesn't the determining role of warfare on science at a place like Scripps refute the distinction between this pair "democracy"/opinion and "fact"/science? If war is a fact of modern "democracy", where

⁸ *Ibid.* p140.

⁹ Rainger, Ronald "Constructing a Landscape For Postwar Science: Roger Revelle, the Scripps Institution and the University of California, Minerva, 39. Netherlands: Kluwer publishing. P. 332.

does that leave scientists like Deane—not to mention Scripps as a whole--much of whose funding comes directly from the Navy¹⁰?

Structure: Soundtrack

Acousmatic voice

I filmed interviews at each site, during which a spokesperson for the simulation would explain it. But using this material seemed to pose more problems than it solved. For one thing I was not skilled enough in my questioning to avoid stilted performances. Moreover, the one-on-one speaker to viewer relationship tends to deteriorate into “talking heads.” This flatness can be countered by including a multitude of perspectives or radically shifting perspective, both of which were beyond the time and resources available to me.

There was also the technical problem of the paucity of film that could be dedicated to these “informational” close-ups. Mostly my strategy was to run the camera at intervals, so that at least a kernel of useful visual material of the interlocutor might present itself in the least amount of film.

Given these constraints, I decided that, for the most part, the informant’s voice should resonate, hover, spectrally, “acousmatique”—unmoored from its source, searching for it across the unfolding scene. That way the voice would be more akin to the “uncertainty”—i.e. the flipside of risk calculus/calculation—that the films hoped to

¹⁰ Conversation with Grant Deane. 10/27/13.

probe. I would break this rule, but only in the interest of producing a jarring effect or to lend a parodic charge to a sequence that might otherwise be too uneventful.

Ambient Sound/Direct Audio/Artifice.

The ambient sounds of each film would, for the most part, hew to the diegesis, originating within the frame (and directly recorded where resources permitted), except where disruption or artifice was useful in breaking potential monotony or suggesting a transition. This meant, for example, suggesting a self-reflexive “rupture” of the film itself by using the old “pop” from the end of a film reel (as in *Earthrisk* or *Heartland*), or underlining a moment of spectral danger with faint traces of atonal chamber music to undergird (e.g. *Heartland*) or deploying the readings of a hydrophone to suggest a certain immersive artifice (e.g. the *Hylab*).

2.6 “Damage report”

I thought I saw it written on one of the cans of film returned from developing in Burbank. I can’t imagine what they thought of what I was doing. One assumes they don’t care, although a concerned call during the digitization of the *Hylab* footage assured me of a nearness and dearness—a Hollywood standard—of pristine images.

Still, the tone was understandable. The footage was some of the earliest material from the project, and it was also some of the most bruised. My choice of stocks was odd. For some reason daylight film for an interior soaked in fluorescents seemed apropos. But the camera itself had problems—I later identified malfunctioning gears.

Also, the paperwork that I'd sent out with the undeveloped rolls was bad enough that at one point an e-mail arrived in my inbox from the head of production services with an exasperated "we have to talk," sounding the familiar tones of a disenchanted lover. But the relationship of (in)convenience continued. However painful it was to send my mislabeled film through their Byzantine workflow, they needed the money to offset what must be falling profits on their stock-in-trade, this incipiently obsolete medium; and I needed the latter.

"Damage report"—it was some condensation of the "film report" and the fact that it often reported damage. Damage...in the form of purple and yellow flash frames, sprocket tears on the stock—(I should've known from the unhappy sound of grinding of the camera motor as it disengaged from locked gears). But "damage report" seemed to capture two larger concerns—damage to the ecosphere and damage to the film...

...Damage which, in those first shoots, oddly coincided with the plunging of some hydraulically-powered mechanism or other—whether it was the wooden oars that produce the waves in the channel at the Hylab or the black steel actuators that move the behemoth shake table at Englekirk. It was as if the violence of these elemental conjuring machines were scratching, puncturing, snapping the film itself. Despite our hyper-mediated digital culture in which lives, institutions, and things are transformed into actuarial calculations, the problems of the "anthropocene" are decidedly, like film, material, even as they are spun out by companies like Earthrisk (discussed below) into tools for financial abstraction.

Of course at this point in time, film's materiality—its "indexicality" in contrast to the digital, its relationship as a material imprint of the real, the unique way it conveys

time through successive chemically-registered photograms—can't be separated from the medium's twilight. "[Film] tends to take us back in time rather than project us forward" says the longtime celluloid devotee Peter Hutton.¹¹ And it takes us back in time because of its obsolescence.

Ideally, then, the 16mm film grain would imprint itself on the objects and textures of a given site that otherwise seemed to not yet belong to "history" in order to evoke a "future past." In other words, through the visual scintillations of its grain, color, etc., film would help capture the sites, people, and objects in the same net of obsolescence. Moreover, given that film's connotations are tied to its origins in the second industrial age, and given the common focus on workplaces, the project—or at least the material—would seem to evoke old industrials—those films that showcased and sometimes were meant to enhance the performance of a factory, a business, or an institution. The medium would then help suggest that a high-tech startup like Earthrisk belongs equally to the dustbin (or hangar) as the rusting machinery lying about at Englekirk or the 60's era equipment gathering dust in the Hylab. And perhaps from this, a questioning of technology as "progress" and panacea—as a tool for "risk management"—might begin to emerge.

¹¹ *Ecocinema, Theory and Practice*, Eds. Stephen Rust, Salma Monani, Sean Cubitt. New York: Routledge, 2013. p. 24.



Figure 3: Damage

Method: A cinematic quasi-ethnography?

In hindsight, I see this project as a kind of investigation into the rituals, customs, practices of these shamans of the elements—contemporary conjurers of fire, earth, water, air. For again, what I was interested in is what Michael Taussig calls the “seam where matter and myth connect and disconnect continuously.”¹² Restored under the murky auspices of of risk management, a secularized myth of salvation through knowledge/data would seem to attend these simulations, these mimetic conjurings. Again, my hope was that film would suggest the re-enchantment—revisioning as mythopoetic—of these simulations and sites.

¹² Taussig, Michael. *My Cocaine Museum*. Chicago: University of Chicago Press. 2004. p xviii.

3. EARTH RISK TECHNOLOGIES, INC.

3.1 EarthRisk Tech

No surprise, the long-range weather forecasting company EarthRisk comes out of SIO, where a team led by Stephen Bennett developed a massive statistical tome of historical information on weather patterns. EarthRisk now sells this to risk-analysts in the energy industry.

Dale Stokes from the HyLab remembers Bennett. “He worked in the president’s office” Stokes tells Grant Deane who can’t put a face to the name. It’s probably just as well as their endeavors, at least in aim (excepting, again, the overall technomilitary milieu of San Diego), strike me as somewhat opposed. Although both the HyLab and EarthRisk consider their efforts under the rubric of “risk management”--attempting to model carbon levels in the atmosphere, theoretically, in order to mitigate global warming--the work of the HyLab differs quite strongly in intent from weather forecasting that feeds into the culture of the extractive industries responsible for it.

It isn’t exactly “disaster capitalism” in the sense described by Naomi Klein.¹ However, the co-emergence of the company’s statistical interface and belated recognition of anthropogenic climate change suggests more than a fortuitous connection. Not that EarthRisk pretends to hide the profit motive: as CNBC reports: “EarthRisk... focuses on the energy trading market. By focusing in on probability

¹ See: Klein, Naomi. *The Shock Doctrine: The Rise of Disaster Capitalism*. New York: Picador, 2008.

models for extreme heat and extreme cold, it can help investors profit in the futures market."

But, the black swan¹⁵ rears its head. How to account for, and project, new, heretofore-unheard-of extremities in weather? Bennett's answer is...there aren't any:

The nice thing in weather is that there's no such thing as a true black swan event. So you hear a lot of people talk about black swans and a lot of people say hurricane Katrina was a black swan, Hurricane Sandy or the superstorm on the east coast was a black swan. That's not really true. Weather is a physically bounded system. We know that we have Katrinas, they're in the historic record we've observed them before. We know if we take one of those storms and we put it in New Orleans, we know exactly what's going to happen. It's not something that's never been observed before, it's not something that can only be explained in retrospect.

In a lot of other fields, especially in economics, there are true black swans. Meaning that the stock market has never moved up to a certain amount in a day, until it did. And then experts are left to figure out why did the stock market move that way? And the explanation only comes in retrospect.

In weather we know, because we've observed these sorts of systems before—you can still have record temperatures...but we know that the temperature in San Diego is never going to be thirty degrees below zero, Fahrenheit—it's just not going to happen, the physics of the system won't allow it. That would be a true black swan. If San Diego California were to be thirty degrees below zero Fahrenheit that's a different planet, that's not the planet we're on today.¹⁶

First of all, I want to tell him, San Diego *is* a different planet.

It's beyond my extremely limited understanding of meteorology to attempt to disprove this argument. But isn't its premise—of weather occurring within predictably regular patterns even at the most extreme—invalidated once complex human interactions with weather are factored in? Indeed, isn't the temperature now as linked to the political economy of unlimited growth and fossil fuels as job figures are?

¹⁵ See footnote 1, p. 1.

¹⁶ Interview with Steven Bennett, 12/17/12.



Figure 4: Dry-erase oracle

3.2 Gaslamp

A barrel-chested man in a Mexican wrestler's mask, asks what we're filming. Without a prompt response he offers an answer: "the losers of San Diego." He goes on "Yeah, students tend to be upper middle class, so they look down on everyone."

On one level this is hard to argue with. It's not *untrue* that I am a student and that the implied class position enables a certain distance easily confused with disdain. And it's also not *untrue*: I want to capture losers and winners, but in what way? Through what sort of lens?

After all, "losers," those abject ones who "let it happen," only exist in an economy of "winners," and those positions are determined by the values of the beholder.

If anything I was hoping to depict the winners and the losers as tethered to political-economic structures rather than to the identities they'd carved for themselves.

Anyway, between EarthRisk and its downtown surroundings the contrasts present themselves readily, beginning with the cushy digs and playful face of a high-tech speculative enterprise set against the San Diego “bridge and tunnel” crowd and the downtown’s year-round population.

As the night winds down, we go searching for something I’d made a note to film—a homemade wheat-paste poster, done in an intentionally folkish childlike style, depicting the many shades of “Occupy” waving banners of “resistance.”

As it turns out the poster has been torn beyond recognition—and besides it’s too dark.

Structure: Night and Day/Mobile and Static

To different degrees, the area of each site I filmed constitutes a typology of exclusion: exurban low-rent mixed-use sprawl (El Cajon); suburban military-bedroom community complex (Scripps Ranch/Miramar), “redeveloped” urban (EarthRisk/Gaslamp), bourgeois beachside scenic (La Jolla). But nowhere are these exclusions felt as much as in those contiguous areas of the business district, the Gaslamp and skidrow—at night. And it was probably this site, full of contradictions and socioeconomic disparities, that planted the seed for the overall structure of the films: a unity of context, time and action. This structure would allow the film to emphasize the unreconciled dimensions of the technical deployments witnessed in the light of day and the contexts in which they function.

Each film moves, from day to night, into, across, and back out of a given simulation or “risk staging” site. The films “loop” at the divide between night and day. Each of the films “maps” a particular geography, and within it, a particular technical apparatus, procedures, and rituals.

The basic “mapping” elements are tracking and static shots whose relationship might be described as beads (the static shots) on a looped string (the tracking movement). I want to say a necklace, but it would be a peculiar kind where the beads cluster toward the ends and center. It was my hope that a dialectic between the mobile and the static would emerge—that while the camera roved across a given site, the static images would capture telling details that the roving “master shot” could not.

In these vignettes I aimed to cast a cold eye—to frame with as much unsentimental distance as possible. Given the relative social vacuum of the four milieus, the risk of creating a visual spectacle of destitution and excess was low. And where such extremes are unavoidable—EarthRisk’s downtown address near the Gaslamp, awash in

homelessness, debauchery and diamond bands— running this risk was better than cropping them out.

4. ENGLEKIRK CENTER

4.1 Miramar/Scripps Ranch

We exit “The Jewel”¹ via the artery La Jolla Village Drive through one of its characteristic passageways of mirrored glass and palm trees. To the left, the eye ascends the height of an office tower and then drops onto a chaparral desert tract before hitting the 805. On the right is the La Jolla Crossroads, a block of three-story stacked pomo-neo-Italianate condos extending a quarter mile.

As La Jolla Village drive becomes Miramar Road, we begin to trace the northmost edge of the eponymous Marine Marine Corps Air Station (MCAS), of “Top Gun” fame. (After referring to it a “naval base” to Dave Miller of Heartland, he warns me not to misapply the Navy label to these “proud” and “few”).

To the left, for miles are tarmac, hangars, multimillion dollar weaponry, grunts. On the right are strip malls, where clustered industries impose a regular order on the terrain, and successive blocks of commerce dedicated to a single specialty—home furnishings, restaurant supplies, hardware, car dealerships. This pattern is interrupted only by the odd gas station, fast food chain or strip club. On the right, groups of yellow-shirted Marines jog MCAS Miramar’s perimeter. Across the street, someone spins and flips a signboard that reads “GUNS→”

In addition to these staples of the New American Frontier, the area also boasts its share of architectural marvels, or at least one. I’m referring, of course, to the white pyramid of the San Diego Design Center, which materializes in the distance like a

¹ La Jolla.

mirage but unlike one persists as you approach, any impression of solidity giving way to the illusionism of white latticework. Not only an area “wonder,” the Design Center is also one of the stars of *Demolition Man*, a Stallone vehicle about a “risk-free” future where people copulate via “VR” headsets, eat micro-sized nutrient-packed meals, and listen to Muzak versions of commercial jingles from the past.

But it’s the area’s namesake, Miramar, aka E.W. Scripps Ranch (incidentally the name of the area further up the road) that is, in terms of grandiose replicas, the real deal. The main building on the 1200 acre estate was constructed in the image of Chapultepec, the Emperor Maximilian’s castle in Mexico City. Like Xanadu, which Welles rechristened the Hearst Castle, the attempt testifies to the grandiose eccentricity of its owner: E.W. Scripps: the firebrand newspaperman who amassed a fortune from a media empire only rivaled by that of W.R. Hearst...who, along with his sister Eleanor Browning, planted the seed for SIO, and thus UCSD...Scripps, the “traitor to his class”—the rich, self-described contrarian who penned articles like *Belligerent Rights in Class Warfare*¹⁸ while waited on by a swarm of servants.

4.2 Englekirk Center

Up a winding asphalt road, shared with what I gather must be an abattoir (on quiet days the braying and squealing of livestock is unmistakable), a different sort of domestic simulation is underway—one more technically elaborate if not as architecturally extravagant.

¹⁸ See Scripps, E.W. *I Protest: Selected Disquisitions of E.W. Scripps*. Ed. Oliver Knight. Wisconsin: University of Wisconsin Press. 1996.

Englekirk's gravel expanse is home to some of the most violent recreation possible, a veritable inventory of geophysical and technological punishment. In addition to the facility's shake table—the largest such outdoor device in the world—Englekirk has a set of curved tracks to test train derailment and “a nitrogen-based blast simulator” to test building materials against the impact of bombs.

The giant shake table is more complex than it looks, “It only shakes on one axis” one of my hosts says “soon it'll move in two.” Indeed, one soon notices that the walls of this seemingly immovable concrete bunker can be switched out, pushed back to allow room for expansion. And yet, they tell me, even then the shake table will not mimic a quake with precision—an earthquake combines three vectors of force....



Figure 5: The “unheimliche” soft-story house

4.3 Unhomely

I’d never heard the name “soft-story”, a type of home that peppers the California landscape, before seeing its unhomely double atop the shake table at Englekirk. Never *seen* it as such until it was proposed as a model of architectural instability about to be destroyed. For now, the building is strangely alive but deformed: its wooden carapace punctured by the voids of fake windows like empty eyesockets.

The “soft” story, of course, refers to that bottom floor, typically a carport supported only by beams, that crumbles quickly in an earthquake. Inside, all manner of instrumentation—wires, CCTV cameras—snakes across the floor in so many tangles that I can’t imagine how they tell what’s what. But of course there is method to this madness.

While I filmed, there were various simulated quakes or “shakes,” during which the Romanian accent of the site’s strongman, Dan Radalescu, echoed through every corner of the place with the names of earthquakes whose equivalent energies the building would now be subjected to—*Loma Prieta, Cape Mendocino, Northridge, Superstition Hill*—followed by the tremulous “white noise” that could be any kind of low-wave seismic vibration.

These brief intervals of “action”, sometimes made visible only by the faint shaking of wires, interrupt a program of construction during which crews put in and take out the various dampers they’re testing, and engineers climb up and down the building’s four stories, taking measurements and tracing and hatch-lining the cracks and fissures that result from the shakes before photographing them.

After half a dozen test-regimens, and quite a few more shakes, by the time the last test, the “limit test” or collapse, is about to take place, these multicolor hatchings and wirey marks have multiplied into some kind of phantasmagoric art installation.

4.4 “The best way to predict your future is to create it!”

To get access to Englekirk, I was in touch with several representatives, but my point person was the facility’s IT specialist, Robert Beckley, a former Army man whose buoyancy was a welcome contrast to the physically leaden quality of the site.

At some point in our exchanges over months, a kernel of wisdom--“The best way to predict your future is to create it!”--began to appear as a post-script to Beckley’s emails (which were declaimed with utmost enthusiasm! no matter what the subject!). This post-script speaks to the ideological-unconscious and mission of the place—and,

indeed, the others I recorded for the project. For in what Beck calls “staging,”¹⁹ which in my project is represented by simulations, the simulated thing itself can produce consequences, even disastrous ones, that eclipse all possible safeguards.

Under the larger umbrella of “risk society”, examples flood to mind—from the psychological devastation of knowing one is the inheritor of a defective gene to the fact that here, at Englekirk, the very new ability to simulate an earthquake to scale may give a false sense of security to those involved in developing building ordinances. Although risks are of course not reducible to the apparatuses that calculate them, the evermore elaborate, far-reaching, and interwoven these technological regimes for simulating risk become, the more they entrain their own uncertainties—in Rumsfeldian, “unknown unknowns.”²⁰

Beckley’s email sign-off lends this paradox of staging a personal touch while at the same time condensing both the optimistic myth of the self-made individual and potentially world-altering uncertainties.

4.5 “Test” day

“Mother nature is kind of a mean laboratory to play around in” a representative from Simpson Strong Tie, maker of one of the dampers previously tested in the mock-house, says to the interview from the PBS NOVA series. “It’s a lot nicer when we can do things in our own laboratory.” Although Englekirk, of all laboratories, if only for its sheer size and outdoor location, strikes me as a literal blurring of the distinction between

¹⁹ Beck, Ulrich. *World At Risk*. Malden, MA. Polity Press. 2007. p.10.

²⁰ *ibid.* p. 127.

“mother nature” and the laboratory—a distinction that so many theorists, Beck and Latour included, have made it a point to debunk.¹

The spectators roll in—members of construction firms, design companies, structural engineers, their families, news outlets, a crew from the NOVA series. I think it’s likely that the Center has rarely, if ever, seen so many guests. After all, this is the first test of its kind: the first outdoor, controlled collapse of a soft story structure. And yet, the importance of the test is belied by the crowd, still inflowing, whose expectant milling about or lounging on recently dismantled scaffolding suggests nothing so much as the informality of a free outdoor concert.

4.6 Atavism

“They’re laughing at your camera,” a talkative Iranian designer with a practice in Irvine tells me. Indeed, the 16-millimeter Arriflex BL, a tank of a news camera from the 60’s sporting a top-loading magazine (in more pronounced models “mouse ears”), cuts an odd figure in the midst of all of these fixtures of the contemporary digital landscape—GoPros, DSLRS, Varicams—not to mention the proprietary CCTVs that monitor the shake table and now the soft-story house from a multitude of angles.

“You’re trying to match the 19th century design of the building” the designer continues, innocently, to needle. At some point he must’ve asked (as everyone did) “Why are you shooting on film?” and I, searching in the heat for an answer, alight on a something about the “superiority” of the film image. This, in turn, incurs the ire of a

¹ Beck: “There was a time when science took place in a laboratory as a spatially and temporally limited empirical science. That time is over.” *Ibid.* p 36.

nearby CBS TV cameraman who insists that the image will end up digitized and that *that*—pixels not grain—is film’s proper provenance.

This annoys me. I resent the fact that I’ve been drawn into such a frivolous debate, and I pettily compare the creases on the cameraman’s bronzed neck to the rude jags of tectonic plates whose movement will soon be simulated on the shake table.

Of course, in truth we have more in common than we’d like to admit, besides the fact that we’re essentially overgrown children bickering about the superiority of our toys. We’re engaged in the same fundamental process. And it occurs to me after the fact that I am, consciously or not, indeed attempting to conjure something of the 19th century: something, that is, of the genesis of cinema whose pioneers, Mary Anne Doane has pointed out, were involved in domesticating the shocks of modernity by staging, recording and re-presenting them to a newly captive audience in need of sensorial reprogramming.²²

The designer thinks he has the inside scoop on which side of the soft-story will fall first. He directs me to focus on the lower left corner—the weakest spot on the building. The strongman’s voice comes over the PA:

Spectral acceleration in 10, 9, 8,7, 6, 5, 4, 3, 2, 1....

²² In other words, what she calls “the structuring of time and contingency in capitalist modernity.” Doane, Mary Anne. *The Emergence of Cinematic Time: Modernity Contingency, the Archive*. Cambridge: Harvard University Press, 2003. p 4.

4.7 Post-Festum

It actually takes six such attempts to hobble the giant. And it falls just as the designer predicts--torquing, buckling and folding on the corner he has directed me to focus on. The assembled crowd erupts in hoots and exclamations of enchanted disbelief

But in the midst of this celebration is the incongruous sight of Beckley consoling Pouria Bahmani, the lead graduate, second to the project's Principal Investigator, Dr. John Van de Lindt. Bahmani in tears, Beckley now assuming the role of de facto guardian of Englekirk's sympathetic nerves equally as much as its fiber optic nervous system.

I gathered Bahmani had been chastised, or something had gone wrong with the test, the instrumentation...*something*...

But no. Actually, it all had gone according to plan. These tears were of joy, albeit realized through spectacular destruction. Later, in an interview, Bahmani awkwardly described his feeling as “spending all this time...then [giving] birth...”²³ I suspect it was also something like the bittersweet culmination of studies galvanized by the 2003 quake in Bam, Iran that claimed 30,000 lives.

Bizarre, this kind of experiment that requires that the thing—in this case an entire mock-house—be destroyed. In the 19th century the physiologist Claude Bernard christened his tests on animals “experiments in destruction”: in order to understand how something, an organ, a visceral substance, worked, you had to kill it.

²³ Interview with Pouria Bahmani. 8/11/26



Figure 6: Cause for celebration

4.8 Aftermath

On a day not long after the paroxysm of obliteration, the air at Englekirk is a sticky soup. The workman-like camaraderie of the phases leading up to and through the test has dissolved. The honeymoon is over. The vinyl sign hanging from the side of the soft story house bearing the names of all the NEES²⁴ consortium collaborators has long since been carted off with remains of the structure. The remaining members of the Colorado State team have overstayed their welcome and have been evicted. The contents of their former office in the control building now sit outside like an absurdist scenography waiting for actors.

²⁴ Network for Earthquake Engineering Simulation.

I need to interview Bahmani before he returns to Boulder, but he's busy packing up his team's work. An odd hour or so in the dank, bothered commotion is all he has time for. A certain tone is set by the eviction: during the interview, everything seems to go wrong; first of all, the swampy day, which turns the room into a sauna....

...Then, about one minute into filming, the magazine on the Arriflex jams. To escape the sauna and fix the cantankerous relic I repair to one of the tables outside. As I work, surrounded by the tossed furniture, still sweating bullets, while fiddling in a changing bag with the jammed film magazine, a skirmish breaks out in the office. An outspoken female member of a janitorial staff is haranguing the hapless engineers in Spanish: The cleaner needs to get in to do her job—I make out at least that much—and they're not allowing her to do it. Thankfully, my single crew-member intervenes to negotiate a truce in broken Spanish. The brief miscommunication ironed out, the workers are allowed to do their job.

Structure: Installation

The installation was undertaken as one of several possibilities, of which others might still be realized. Given the available space—a veritable “black box”—and the project’s theme of the elements, my idea was that installation should schematically mimic the Aristotelian diagram of the *stoicheia*, where a diamond within a square demonstrates the the relations and oppositions of those elemental qualities.

The four channels would be edited so that certain events or kinds of shots or sequences would occur at roughly the same time and thus visually align, thus allowing the viewer a certain freedom to compare the sites peripherally while at the same time imposing a *relatively* monocular structure on vision. This “disjunctive synthesis”—to potentially misuse a phrase deployed by the Philosopher Gilles Deleuze—would hopefully lend itself to understanding the shared qualities of the elemental simulation sites (i.e. their “universalities”) as well as their differences.

The sonic experience of the work would, similarly, toe the line between alignment and disjunction, focus and dispersal. The decision to use parabolic speakers represents a compromise between the isolation and intelligibility of the sound and the mobility of the viewer in the space. Using headphones would isolate the viewer with burdensome prosthesis, suggesting a cloistered, almost solipsistic vision, and stereo speakers would require construction of visually and spatially obstructive walls. The hanging speakers are not sonically ideal, but for my purposes, the best of all worlds.

5 HEARTLAND FIRE TRAINING FACILITY

5.1 “The Box”

The incline up through the mountains is akin to the slow climb up a roller coaster’s first leg before it drops into its series of artificial peaks, valleys, twists, and loops. No matter how many times one has taken the ride, the anticipation of the drop remains. Except said descent into the canyon stronghold of El Cajon—accordingly named “the Box”—is typically less than heart-stopping.

To get to Heartland’s pyrotechnic staging grounds, you exit the 52 East onto Cuyamaca Street, where you’re spit out onto a road edging Gillespie Field, the area’s aviation hub. During the yearly airshow Gillespie becomes another a site of simulated conflagration when the runway erupts with fireballs detonated by a roving team of kilted explosives experts, as World War II-era bombers stage fake sorties overhead.

Outlying the airfield are strip malls—the tenants running the gamut from sporting goods to megachurches. Nearer Heartland appear municipal buildings and industries of various kinds—chemical plants, construction materials and the like. Somewhat ironically this puts the training center in the midst of the manufacture of materials whose increasing toxicity and flammability are what the head of Heartland, Captain Dave Miller, fingers as the single greatest culprit for evermore intense fires.

5.2 Capt. Miller

Captain Miller is the image of all-American grit, but with a kind of laconic affability. Stocky and mustached, he speaks with a gruff, sandpapery voice suggestive to my Eastcoast ears of some “great outdoors,” albeit arid ones. My guess is somewhere in Four Corners, maybe Colorado.

Actually, he grew up a few miles from here, in Santee, whose mountain habitations you can see from Heartland—a place Mike Davis, a native El Cajonian, labels a “conservative stronghold.”¹

Similarly, my impression of “The Box”—so named for being hemmed in by these mountains—is of a traditionally conservative area that is increasingly (if reluctantly) multicultural². Along the main “historic” strip are small businesses, restaurants and the Unarius church, whose cosmic devotees are now joined along the religious spectrum by Iraqi Chaldeans (El Cajon has a growing reputation as a “Little Baghdad”) as, it would seem, US war resettlement programs look for somewhat far-flung places to put those who’ve fled from the conflicts we’ve been party to.

“The Box” also sports a well-established Evangelical presence, manifesting in neon-branded mega-churches, like “The Rock” and “Foothills.” This presence can be felt even at the local Honda dealership, where a salesman asked me if I’d like a Bible with my car. He eventually launched into a description of the company’s hyper-efficient “on time” production chains, while noting, that even this “flexibility” is vulnerable to catastrophe: following the 2011 Tsunami Honda had had to relocate to

¹ Raven, Lucy. “Mike Davis By Lucy Raven.” <http://bombsite.com/issues/104/articles/3146> Bomb Magazine 104. 2008. Web. 02 Jan 2014.

² Gupta, Arun. “Little Baghdad, California.” The Progressive. n.d. Web. Jan. 02. 2014.

cheaper production bases in Southeast Asia...and how those factories were then beset by floods, making for a shortage of vehicles in El Cajon....

5.3 Heartland

The Heartland Fire Training center was founded in the mid 70's, Capt. Miller tells me, when the San Diego fire service recognized that while its teams constantly crossed jurisdictional lines to collectively fight fires, training was conducted separately. The various county departments pooled resources for a state-of-the-art training facility, and Heartland was born.

Although they are separately administered, Heartland and El Cajon's fire station are housed in the same low-slung, brown brick structure as is the adjoining animal shelter. Again, as with Englekirk, one hears the cries of animals, and again, once inside Heartland you're again outside.

The training ground consists of a four-story burn tower, a backstop to practice the use of a hose, a rubble pile to simulate rescue situations, and an "environmental building" which became my primary focus. From an old graphic hanging in Capt. Miller's office of the training ground in cartoonish full-swing, the salient features of Heartland don't seem to have changed much. And, indeed, he tells me, the fire service is essentially the same as it was 40 or 50 years ago.

"Risk isn't changing" he says "the fire service's definition of risk is changing." Right, risk is about definitions, about who controls them, who gets to say what is and

isn't a risk.¹ Miller describes scenarios where various “expert” opinions, typically those of environmentalists and firefighters, compete to define the outcome of a wildfire and therefore how it should be contained: how much it should be let to burn and how much fire retardant can be dumped into the riparian areas in wildlands where people increasingly build their homes.

This conflict over definitions of risk synchs with Beck's description of the risk society as one in which, alongside rapid technological development, and unprecedented proliferation of knowledge introduces new unknowns and new hierarchies of “experts” who calculate, interpret, and transform them into risk calculi.

However, the facts on the ground at Heartland refute Beck's conclusion that these hierarchies have replaced traditional inequalities—that while “poverty is hierarchic, smog is democratic.”² For if fires are getting more mobile, by the look of it the dirty, sweating, buzz-cut recruits at Heartland are not. They will incur not only the basic cost of exploitation that we all do as “workers” of various stripes, but also the added cost of serving as human barriers to increasingly chaotic fire regimes as well as those of floods, landslides, quakes and tsunamis in areas made vulnerable by exploit, indifference or “risk taking.”³ Capt. Miller's description of the fire service as increasingly “all risk” is, thus more than apposite.

¹ Beck, Ulrich. *World Risk Society*. Malden, MA. Polity Press. 2007. p.31

² Beck, Ulrich. *Ecological Enlightenment*. New Jersey: Humanities Press, 1995. p. 50

³ Polygraph 22: “Ecology and Ideology.” Eds. Gerry Canavan, Lisa Klarr, Ryan Vu. Durham: Duke University Press. 2010 p 2.



Figure 7: The “Classroom”

5.4 “Classroom”

The environmental building is variously labeled by a plaque engraved “beginner’s house” hanging from an exterior wall or by the steel door plasma-cut with the words “Dragon’s Layer” and a glyph of the chimerical creature. As I was denied access during the burns, for the most part the camera ran blindly, switched on and off by a fireman in an oxygen mask once the smoke and heat reached dangerous levels.

Of all of the sites, Heartland’s “classroom” gives itself over to the element in question most fully, conjuring its danger closest to the simulators. But the classroom also evokes the laboratory, with labcoats replaced by flame retardant suits.

Looking at the footage prompted several people, including Grant Deane from the Hylab, to remark on the odd mixture of outward nonchalance and anxiety displayed by the firemen “in their element”—the relative immobility of the recruits in the face of this unruly specimen. Deane even suggested that, like his efforts in the Wind Wave Channel, this “classroom” should be considered a form of “emergent complexity” with heat and anxiety replacing wind and waves as the variables producing otherwise “un-simulatable” conditions.

And it is the material that I gathered at Heartland from inside the “environmental building” that demonstrates the most intimate correspondence between film and the element in question. After all, fire is the *materia prima* of film—the latter being, at its most “elemental,” nothing but the alternation of light and dark, a feature exploited and meditated on in everything from those reductio structuralist “flicker films” to use of the projector itself as a paracinematic form, or even avant garde provocations like Guy Debord’s *Howls for Sade*.

5.5 Ruins

At Heartland, piles of rubble simulate a fast-forwarded aftermath—the closest you get to a collapsed freeway or carpark without waiting for it to be dynamited or toppled by an earthquake.

Strange glyphs—signals between phantom search and rescue teams—are engraved on concrete cylinders at various degrees of repose. Rude shards of concrete are piled wide and high.

A crow caws from a jagged perch on the top of the heap, then disappears behind it, directing our attention over and beyond the rubble, to an expanse of trammeled earth—what appears to be the nether zone of a landfill—where families of these birds pick at carrion and scraps. And more cawing, this time seemingly in response to the hydraulic belching of waste management trucks in the distance.

Here you get a different view of disaster—this one taking place in slow motion.

5.6 “...the environment....we’re trying to destroy it!”

When queried on the role of climate change in fire regimes, Capt. Miller doesn’t do much to dispel my prejudiced caricature of an intransigent conservative. Although he admits to the *possibility* that rising temperatures *could* contribute to intensifying fire regimes, he offers the final caveat: “I don’t think we’re ready to say for sure that’s what’s happening.”³⁰

However, there’s something refreshing about a public servant protecting citizens from the elements who, almost unprompted, guffaws “we’re not trying to save the environment, we’re trying to destroy it!”

That was a bit later in my “log” of journeys to the Heartland. But the subject of some vaguely defined “environment” or “ecology,” kept popping up in the brief discussions we’d have on my various visits. At first Capt. Miller is somewhat unsure of what I’m after (as I must admit, at first, am I). On my third or so visit, I tell him something to the tune of “the simulation of the elements” whereupon an impassive face behind reflective shades betrays concern. “This isn’t some environmental thing is it?”

³⁰ Interview with Dave Miller. 11/17/13

“No, no” I immediately respond, my mouth taking on the exaggerated proportions of assurance.



Figure 8: “What will have been”

Post-Script: Ruins-to-be

What Paul Virilio says of technological development held for all of the sites I was examining: that the invention of the ship is the invention of the shipwreck.³¹ And although these ruins-to-be of novel invention, of “civilization” more generally, are built into our technological surroundings, the sites I was looking at—from the cold war

³¹ Virilio, Paul. *Unknown Quantity*. New York: Thames & Hudson, P 24.

equipment of the Hylab, to the demolition at Englekirk, to the charred interior and rubble of Heartland, to the “cutting edge” algorithms of the corporate startup, Earthrisk—address this degradation directly. Through their attempts to “simulate” increasingly unruly elements, they emphasize, consciously or not, the intensifying of planetary ruin.

Moreover, simply by virtue of their place within a larger “culture of risk,” it is fair to wonder whether these sites indirectly participate in this process of degradation. To me the simulations seem to internalize paradoxes peculiar to the confluence of the “risk society” and the “anthropocene.” Namely:

- The way that the culture of risk, tends, in our era to offer piecemeal solutions to ever-ramifying global catastrophes.
- The way that the sites collectively represent a culture in which science serves and abets the speculations of the market and the demands of the military
- The “uneven development” that the sites are collectively part of. That is, the inequalities represented both by the technological infrastructure within the laboratory and without, in the vicinity of a given site.
- The simulation as potentially eclipsing the real thing, or at least affecting it in unforeseeable ways, the closer the simulation comes to the parameters of that reality: the fact that forecasting becomes self-fulfilling prophesy.
- Similarly: the ability to better and better forecast non-linear, potentially cataclysmic events (Earthrisk); or the improvement of risk management, as the “risks” seemingly become more and more unmanageable.

- The focus on “unknown unknowns,” i.e. potential catastrophes, while leaving intact what Žizek calls the “known unknowns”³²—unconscious beliefs, ideological precepts—which again could be heard and seen, to greater or lesser degree, in the hierarchies and inequalities in, around, and, comparatively, across the sites, which is perhaps the single greatest catastrophe.

My aesthetic “position” on these problems, which I’ve only been able to capture indirectly in a manner largely unspoken: four loosely synchronized “films,” presented in an installation, that looks at, and listens to, the sites and their surroundings; an installation that, hopefully, proposes a rethinking of the “progress” from which a risk culture of simulation gets its unconscious marching orders.

As for the medium through which I have tried to accomplish these goals, “cinema”, it is a medium on its way out. In the planetary timescale that more and more people are trying to think through, one could at this point say that film bears out the apocryphal prediction of its creators: that it’s an “invention without a future.”³³

³² Žizek, Slavoj. *Living in the End Times*. New York: Verso. 2010. P. 350.

³³ August and Louis Lumieres.

References:

Beck, Ulrich. *World Risk Society*. Malden, MA. Polity Press. 2007.

Beck, Ulrich. *World At Risk*. Malden, MA. Polity Press. 2007.

Beck, Ulrich. *Risk Society: Towards a New Modernity*. London: Sage. 1992

Polygraph 22: "Ecology and Ideology." Eds. Gerry Canavan, Lisa Klarr, Ryan Vu. Durham: Duke University Press, 2010.

Dalle Vache, Angela. *Cinema and Painting*. University of Texas Press, 1996.

Raven, Lucy. "Mike Davis By Lucy Raven." <http://bombsite.com/issues/104/articles/3146> Bomb Magazine 104. 2008. Web. 02 Jan 2014.

Doane, Mary Anne. *The Emergence of Cinematic Time: Modernity, Contingency, the Archive*. Cambridge: Harvard University Press, 2003

Gupta, Arun. "Little Baghdad, California." *The Progressive*. n.d. Web. Jan. 02. 2014.

Klien, Naomi. *The Shock Doctrine: The Rise of Disaster Capitalism*. New York: Picador, 2008

Scripps, E.W. *I Protest: Selected Disquisitions of E.W. Scripps*. Ed. Oliver Knight. Wisconsin: University of Wisconsin Press, 1996.

Simulation: Pragmatic Construction of Reality. Eds. Johannes Lenhard, Gunter Koppers, Terry Shin, Berlin: Springer, 2006.

Perrow, Charles. "Culture, Structure, Risk." In *Risk Society and the Culture of Precaution*. Eds. Sabine Berking. Basingstoke: Palgrave MacMillan, 2006.

Rainger, Ronald “Constructing a Landscape For Postwar Science: Roger Revelle, The Scripps Institution and the University of California.” *Minerva*, 39.

Scripps Institution of Oceanography. Raitt, Helen and Moulton, Beatrice. The Ward Ritchie Press, 1967.

Ecocinema, Theory and Practice, Eds. Stephen Rust, Salma Monani, Sean Cubitt. New York: Routledge, 2013.

Taleb, Nassim. *The Black Swan: the impact of the Highly Improbable*. New York: Random House, 2007.

Taussig, Michael. *My Cocaine Museum*. Chicago: University of Chicago Press, 2004.

Virilio, Paul. *Unknown Quantity*. New York: Thames & Hudson, 2003.

Zizek, Slavoj. *Living in the End Times*. New York: Verso, 2010.