

Flooded in Sludge, Fueling the Nation:  
Generating Power, Waste, and Change in East Tennessee

A DISSERTATION  
SUBMITTED TO THE FACULTY OF  
UNIVERSITY OF MINNESOTA  
BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

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May 2014

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## Acknowledgements

This work had been enabled by the generosity, support, and care of others. I would like to thank Hoon Song, Karen-Sue Taussig, Bruce Braun, David Pellow, Stuart McLean, and Kevin Murphy for offering intellectual guidance as I worked through the questions at the heart of this project. While at Minnesota, I also found support in the positive feedback and helpful insights of Carl Elliott, Rod Ferguson, Bianet Castellanos, and the rest of the faculty and staff of the American Studies department. I thank Lauren Shell, Elizabeth Ault, Benjamin Wiggins, Jesus Estrada-Perez, Mike Cheyne, and Nate Meyer for those friendships that went beyond collegiality and sustained me throughout this project, and will continue to do so long after.

Teachers shaped the path that led me to this work. I thank Noreen Walton, David Serlin, and Valerie Hartouni for going beyond the role of a teacher to become mentors.

I also greatly appreciate the diligence and assistance of archivists Cathy Keen at the Smithsonian, and Maureen Hill of NARA Atlanta. Thank you also to Kristan Cockerill at Appalachian State, for putting me in touch with Carol Babyak, Shea Tuberty, Keith Seramur, and Ellen Cowan. The Wenner-Gren Foundation provided support for this research project, both the ethnographic fieldwork in Tennessee and the archival research. The support of a University of Minnesota Doctoral Dissertation Fellowship helped me complete this project by providing for a year for writing.

This work became personal because it is in honor of my family and friends. My mom, papa, and brothers are my heart, and my heart is in this work. This project brought me close to my Aunt Crystal, Lena and Joci, Grandad and Jackie, all of whom helped me tremendously during my time in Tennessee. Brad Roberts, perhaps more than anyone else, led me to new findings and helped me navigate the East Tennessee landscape during fieldwork. The stories I tell would not be possible without his help. Danielle, Christine, and Jan, you are all my family and I deeply appreciate your love and care during, before, and after this project. I thank all of the families and people of East Tennessee who agreed to talk with me about their lives. I thank Jessica Tracy for her friendship and support, and Beverly Daniel for helping me have fun and meet new people. Finally, it is with the love and support of Michael Levy that I have been able to find my voice, and use it to share my values and perspective. I thank you with all my heart.

*For Aunt Crystal.*

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## 1. Gray Matter

*“... the viewer reads the landscape of his childhood in the evening news. The thin film of writing becomes a movement of strata, a play of spaces. A different world (the reader’s) slips into the author’s place.”*<sup>1</sup>

Walls of dirt crumble in the night. Ash spills out from behind with the force of five decades. The slow incubation of its power shifts suddenly; it will attract attention. It will cause a stir. It will uproot people. It will alter the river. It will become a future immanent in its being. For a brief moment in time, the coal ash from the holding ponds at the Kingston Steam Plant will take the stage in a drama about human dreams and disasters. It will show us how power works, if we pay attention, and ask after its force.

Gray coal ash sits in a gigantic pond, a dirt hole in the ground. The plan: keep it here. Fill land with it. Devote few resources to it. It doesn’t really matter. Production of power always creates remainders. The remainders must go somewhere. Here, in Kingston, in East Tennessee, there is more detritus than in most places, because the power dreams scaled up to world-shaping proportions. Built in 1955, the Kingston Steam Plant emerged biggest in the world.<sup>2</sup> And this coal ash flood: the largest in American history. Tons of waste poured out within a landscape where desire, belief, anxiety, fear,

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<sup>1</sup> Michel de Certeau, *The Practice of Everyday Life*, trans. Steven F. Rendall (Berkeley: University of California Press, 1984), xxi.

<sup>2</sup> Originally named the Kingston Steam Plant, the official name of the facility was changed to the Kingston Fossil Plant. Locals call it the Steam Plant, which I use as well.

and hope swirled together among bodies, flows of water, and machines. Suddenly, a radical escape from order.

For everyone who saw it, the coal ash flood of December 22, 2008 appeared strange. Surreal new landscapes of gray appeared late at night. People woke to startling views that disrupted the mundane regularity of daily life. Ashbergs, cenospheres, fish dead of suffocation with gills packed full of gray muck, water that shimmers gray-silver, houses broken and engulfed in mud, boat docks shifted to float in disarray behind the wrong homes.<sup>3</sup> So much gray stuff everywhere, like the moon, or something. Huge chunks of the ash drifted downstream on a river current controlled by the Tennessee Valley Authority – the agency that decades ago dreamed up a plan to control the great river to make loads of power for the nation.

An electrician from the Steam Plant recalls leaving work after the night shift, in the early morning hours of a new day, the day of the flood. The road to the right appeared to be blocked off by some kind of strange, gray wall. Tired, the electrician turned left and went home.<sup>4</sup>

The ash presented itself to me both very strange, and familiar. Sitting in San Diego, home with family for the holiday break during my first year of graduate school, we saw our rural hometown suddenly on the national evening news. The reporter told of a

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<sup>3</sup> “Ashberg” is a word that describes the large iceberg-like hunks of ash seen floating down the river. Cenospheres are the tiny silica particles produced when coal burns at 1500-1750°C. These were seen floating along the river’s shoreline miles downstream after the flood. They were brought to my attention in an interview with biologist Shea Tuberty, who studies their makeup and impacts on various species. Shea Tuberty, interview with author, Appalachian State University (ASU), Boone, NC, May 20, 2013.

<sup>4</sup> Kingston Electrician, interview with author, Kingston, TN, April 18, 2013.



coal ash spill at the Steam Plant – the most visible landmark of Kingston. What? What is coal ash? How? Why? Are our relatives ok? Is this a big deal? Will this matter? A resident of the small Swan Pond community, neighboring the plant, narrated for the news camera the appropriate distress and bewilderment at her sudden loss of home to the tsunami-like force of the flood. TVA officials guaranteed prompt and effective cleanup, to put it all back to how it was before, better even. In contrast, the woman whose home the flood had just shattered said, exasperated, “...the grass, it’s still gonna be there. It’s just wiped out.”<sup>5</sup> This doesn’t make sense, and the news reporter did not follow up. The broadcast concludes with a melodramatic tone of grave seriousness – the performance of an environmental disaster news story. But beyond this moment of visibility, this disaster, unlike the “major” ones, does not seem to matter very much after this. Sense will not be made of it.

This glimpse of where I grew up awash in gray waste shifted my thoughts and feelings. Attention turned to coal ash. What was it? Where did it come from? How long had it been there? These were the basic questions. Then later: Out of what movements and connections was the ash formed? How did this particular landscape change to accommodate its accumulation? What trajectories flowed into the pond, and what hidden memories sat buried in its mass? What does the force of the flood show us about power, agency, desire, change, production, becoming?

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<sup>5</sup> “Tenn’s toxic sludge spill,” YouTube video, 1:48, from a televised broadcast of CBS Evening News, posted by CBS, December 24, 2008, <https://www.youtube.com/watch?v=wtJVSwdfEZ0>.

Questions about existence and time and the role of human beings in the shaping of the world flooded out with the surfacing – the appearance – of the coal ash. Suddenly, the material remains of future-oriented dreams and pasts long thought buried burst forth. The ordered landscape, the dyke wall, cracked open and let out this detritus. Out it flowed and gushed. Spreading through the water, moving the earth, dusting the air, altering life, painting everything it touched gray. An opening, a chance to know something about it, appeared to me mediated by news narration. I saw the ash on the television screen, and it appeared as irrational, open-ended, uncontained, fluid, messy.

Much of it quickly disappeared. Never fully disclosed, ashy particulate matter sank to the bottom of the river or drifted into the air as dried microscopic bits. Or, it simply floated away with the river current before it could be caught and captured and returned to its holding cell. It used to just sit out in the open where anyone who happened to drive along Swan Pond Circle Road could see it. After the flood, the walls were rebuilt. Stronger this time, more carefully engineered. People might think coal ash looks ugly, now, since it stirred up all this trouble. This time, the holding cells will be covered in massive sheets of plastic topped with soil and grass. Better hidden, better contained, more invisible than before. No chance for another mess like this at the Steam Plant now.

The visibility of the detritus – rather than the existence of coal ash – became the problem. Loads of TVA and EPA money flowed in and bought the town a new middle school gymnasium. Water treatment and other civic upgrades long neglected would finally be taken care of. New jobs on the cleanup provided new paychecks. It would take years to clean it all up and restore visible order. And then after that, after the multi-

phased, planned, and coordinated cleanup, workers will build the town a new park.

Where there had been the Swan Pond community full of residences, there will now be a public, TVA-regulated recreational zone. All the homes have been razed but one. The lone holdout, the old man who refused to be bought out and moved by TVA, will now live inside a new park. Kids will still play soccer out here, and in the future, more will come to play in the additional grassy fields whose appearance comes with the burial of the remaining bits of the largest coal ash spill in American history. Somewhere up on a hillside in the trees, a small plaque marks the event as a moment in history, a thing that once happened. Other than that, the plans are to keep coal ash buried and contained.

Coal ash in Kingston is now hidden better than before. But in December 2008, the ash forcefully pushed out into the river and onto the land and showed that hiding was, momentarily, no longer an option. Everyone saw it all of a sudden, as a monumental surprise. For a small group, the Swan Pond community and the other riverfront residents whose homes were bought by TVA following the flood, life altered more dramatically. They moved away then saw their houses torn down, whether or not the ash had touched them. TVA acquired more land along the river where people cannot live. Those who sold their homes scattered away and rebuilt lives in new homes, aided by a sum of money they contractually agreed to never share with anyone.

Four years later I showed up in person, asking questions, and all most people wanted to know about me was, "What's your angle?" They were over the politicizing of the disaster by the news and environmentalists. This wasn't their story; it was a story that people from out of town hoped the former Swan Pond residents would fill in with sound

bites appropriate to a prefabricated narrative. They didn't feel like their story mattered, and they were tired of being roped into other people's agendas.

I traveled around the place where I spent my childhood and reconnected with relatives I previously only knew as adult figures floating in and out of a changing backdrop of houses and apartments. All I did before was evade them. Now I wanted to know everything about them.

I drove around where before I was driven, and saw with 2012 and 2013 eyes what this landscape holds and how life crawls along on its dirt blanket. I sank my legs into the river on the same concrete stoop at the Kingston City Park where as a child I cannonballed in and swam under the powerful sun until I turned several shades darker. Where we went out on the boat, launched from a dock where I always silently considered the TVA warning sign not to eat the big fish caught in these waters.

When you are young a big body of water seems like something permanent, something preexisting your life and probably all the lives of all the humans you know. It doesn't occur to a child to think of a big lake full of fish and minnows as a piece of modern infrastructural design. A gentle vista of tree-covered hills filled in with tranquil waters where summer's soundtrack is a constant insect hum, a sparsely populated place, seems the definition of nature, when you don't know better. Upon studying the ways this landscape changed, the realization that a government agency created this environment, carefully planned out the lakes and hatched the appropriate fish, struck me in a way that seemed to contradict what I had previously assumed. The ordering of the river by dams to serve power did not occur to my childhood mind. All I had ever been told about change

growing up were disclaimers of rural life: “change is slow to come here,” “things move slow around here,” “nothing ever changes.” I took this to mean that the environment slowly chugged along in a dream-haze of humid complacency and seasonal gardening, repeated year after year. What these rural apologies for the pace of life obscure are the profound changes that took place rapidly and turned this landscape from an agrarian, isolated society to a center of American geopolitical, economic, military, and electric power generation, displacing thousands and ordering the terrain to serve human dreams of progress and development. And yet, the “change is slow here” mantra also holds true.

I didn’t know much of this when I left the place. So I returned with a strange combination of childhood memories from before age 14, and acquired academic knowledge, historiographical information, and theories about how power operates in and through this landscape. A sensibility based on intuition and personal genealogy doesn’t seem to fit with the information and theories I’ve come to know. Knowledge is multiple. Toward the end of *When Species Meet*, Donna Haraway writes, “I think cosmopolitical questions arise when people respond to seriously different, felt and know, finite truths and must cohabit well without a final peace.”<sup>6</sup> This was my situation in Tennessee. The political ideologies found in scholarly books and in meetings with local environmental activists often end up circumscribing the complexity of everyday life for the benefit of a *movement* – a coordinated thrust in a particular direction. To travel and conduct research while among relatives in the terrain of my youth demanded the abandonment of an

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<sup>6</sup> Donna J. Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 299.

explicit politics to maintain an open-ended sense of what is possible. I gained intimate knowledges in the process. I want to highlight those “cosmopolitical questions” that arose in the process. Many of the things I found emanate or embody a politics. To understand these things, I ask questions about the conditions out of which value – monetary, social, moral, and spiritual – appears. I am concerned with value and desire as material forces that move things into contact, and what potentialities inhere in moments of encounter.

Out of the cracking open of a waste holding pond, the landscape of my childhood became flooded in gray, blurred and obscured. The detritus is a node in overlapping circuits of connection. It emerged from the dreams of a nation for improvement, for overcoming backwardness and progressing toward something better, beliefs about time and how it functions. The timeline of the power plant only moves in one direction, left to right, in a steady procession of improvements anticipating a more perfect future. The power plant in Kingston fueled America’s biggest dreams. It is also the place where the excess of those dreams could accumulate unnoticed. But things buried still possess transformative power.

The ash is a material force that emerges as an affront to planning, to the notion of human control, and the ordering of things. It is power’s leftovers. In the presence of constant electricity, it is what we push away, make absent.

Gray, shape-shifting, solid and liquid and air all at once, imperceptible to science, invisible to most, its contents and power in flux and little understood, the coal ash is a condition of everyday life, powerful in its senseless motion. It is the immanent trace in a landscape of desire. As for the flood:

It is an opening.

It spills out, beyond capture, beyond full intelligibility,

never fully representable, never again re-present. Not

reducible to scientific knowledge; never widely acknowledged.

It holds together so much, yes.

Yes, it is a network.<sup>7</sup>

Yes, it is an assemblage.<sup>8</sup>

Yes, it is a node of global connection.<sup>9</sup>

It remains inexhaustible by explanatory models.

It is charged with the force of matter and affect, the real and the psychic.

It allows for no binaries.

It is in itself, singular (the event) and of a kind (coal ash, similarly produced elsewhere and at other times, all the time).

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<sup>7</sup> Bruno Latour, *We Have Never Been Modern* (Cambridge, Mass.: Harvard University Press, 1993). The ash is an example of a hybrid network; the flood becomes an enmeshing of humans and nonhumans.

<sup>8</sup> Manuel DeLanda, *A New Philosophy of Society: Assemblage Theory and Social Complexity* (London; New York: Continuum, 2006).

<sup>9</sup> Anna Lowenhaupt Tsing, *Friction: An Ethnography of Global Connection* (Princeton, N.J.: Princeton University Press, 2005); “The Global Situation,” *Cultural Anthropology* 15, no. 3 (August 2000): 327–60. Much of the conceptual design of this project is based on Tsing’s call for ethnographic research as a layered inquiry into tendrils of connection among people and things at different scales of power.

Questioning its existence, what held it together and what forces it embodies is a question into the nature of production that expands beyond belief in human agency.

Excesses of the everyday can build up, overwhelm, engulf. Modes of work, habits of life, epistemologies can condense into a hidden, forgotten matter – a byproduct that produces.

Of what is it a remainder?

How does it matter?

Why must it be forgotten?



## *What Coal Ash Isn't*

Coal ash is not one thing, chemically and physically speaking. It varies such that one could not form a recipe for the re-creation of coal ash in the laboratory and say, “here, this is what coal ash *is*.” During archival research into the documents of TVA’s in-house scientists and managers, I gained a sense of this heterogeneity and ambiguity. Interviews with scientists at Appalachian State University, who worked independently to study various aspects of the Kingston spill, confirmed my thinking. A chemist explained that she could not create a sample of “standard ash” to use in laboratory study, because the chemical makeup of the ash varies so greatly among samples, even from the same pond.<sup>10</sup> A biologist discovered that coal ash, when completely dewatered, settles into an extremely hard solid, much harder and denser than concrete.<sup>11</sup> Coal ash at the microscopic level can be spherical, or non-spherical. It can be gray, black, white, orange, or red.<sup>12</sup> The more I talked with the scientists, the more I realized that this is unknown matter, in many ways. Unknown in that we’ve been generating it as humans for a short time, in that it’s been mostly ignored in isolated holding ponds, and that relatively little attention is paid to what happens within a pond. I learned that the ash varies depending on the qualities of the coal burnt, the conditions of the burning, the reactions with air and land in specific places, the size of the pond, what the terrain is like underneath it, what

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<sup>10</sup> Carol Babyak, interview with author, ASU, Boone, NC, May 20, 2013.

<sup>11</sup> Tuberty, interview.

<sup>12</sup> Ellen A. Cowan, Keith C. Seramur, and Steven J. Hageman, “Magnetic Susceptibility Measurements to Detect Coal Fly Ash from the Kingston Tennessee Spill in Watts Bar Reservoir,” *Environmental Pollution* 174 (March 2013): 179–88.

the weather conditions are like as it ages, where it seeps and how it condenses, and what new coal waste is added to it. All of these things affect the pond and render the ash changeable, unstable, fluid, and volatile in its sheer mass.

In the wake of the Kingston spill, journalists needed numbers to speak authoritatively about its impact. But like the chemistry of coal ash, attempts at scientific measurement fail to produce meaningful results. The initial *New York Times* article reported:

The inventory, disclosed by the Tennessee Valley Authority on Monday at the request of The New York Times, showed that in just one year, the plant's byproducts included 45,000 pounds of arsenic, 49,000 pounds of lead, 1.4 million pounds of barium, 91,000 pounds of chromium and 140,000 pounds of manganese.<sup>13</sup>

But what do numbers reveal about impacts and effects once accumulated byproducts meet a powerful river current? What does measurement allow us to know? The same reporter notes the “competing” numbers pertaining to the volume of the spill, revealing the impossibility of measurement in an earthen, decades old, multi-acre waste holding pond:

Officials at the authority initially said that about 1.7 million cubic yards of wet coal ash had spilled when the earthen retaining wall of an ash pond at the Kingston Fossil Plant, about 40 miles west of Knoxville, gave way on Monday.

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<sup>13</sup> Shaila Dewan, “At Plant in Coal Ash Spill, Toxic Deposits by the Ton,” *The New York Times*, December 29, 2008, <http://www.nytimes.com/2008/12/30/us/30sludge.html>.

But on Thursday they released the results of an aerial survey that showed the actual amount was 5.4 million cubic yards, or enough to flood more than 3,000 acres one foot deep. The amount now said to have been spilled is larger than the amount the authority initially said was in the pond, 2.6 million cubic yards.<sup>14</sup>

Billions of gallons, millions of cubic yards, or thousands of acres all indicate the vastness of this flood in news reporting. So much matter moved, and suddenly. While the journalist aims to report an accurate story of disaster, this passage reveals how difficult it is to measure something like volume outside of the controlled environment of the laboratory. When was the coal ash pond last measured? Sitting outside in a big hole in the dirt, the ash in Kingston built up for over half a century, all the while leaching into the earth below, blowing into the wind, seeping as runoff with every heavy rain, transforming into solids, liquids, and air in imperceptible ways.

Coal ash is not federally classified as a toxic or hazardous substance. A TVA/EPA report on cancer risk related to the ash spill follows several pages of charts, graphs, imagined scenarios, and statements of low risk with a concluding section on “uncertainties.” The study notes three “key areas of uncertainty.” There are “data uncertainties,” “exposure scenario uncertainties,” and “toxicity value uncertainties.”<sup>15</sup>

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<sup>14</sup> Shaila Dewan, “Tennessee Ash Flood Larger Than Initial Estimate,” *The New York Times*, December 26, 2008, <http://www.nytimes.com/2008/12/27/us/27sludge.html>.

<sup>15</sup> Tennessee Valley Authority/US Environmental Protection Agency, “Kingston Ash Recovery Project Non-Time Critical Removal Action River System Baseline Human Health Risk Assessment,” Prepared by Jacobs Engineering Group Inc., Document No. EPA-AO-052, July 11, 2012, [http://www.tva.gov/kingston/admin\\_record/pdf/NTC/NTC83/App\\_H\\_BHHRA\\_2012-07-11.pdf](http://www.tva.gov/kingston/admin_record/pdf/NTC/NTC83/App_H_BHHRA_2012-07-11.pdf).

These unknowns mark knowledge's absence where processes (always) already underway evade quantitative research methods used to predict future harm. In the meantime, coal ash is used to fill valleys where coal mining stripped mountains, and to level terrain for housing developments and shopping malls. It is recycled into cement, wallboard, bowling balls, shower stalls, and paint.<sup>16</sup> The lack of a designation of "toxic" or "hazardous" was a planned avoidance of dealing with the vastness of coal ash as a human problem, unintentionally generated out of desires for power.

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<sup>16</sup> For more on EPA classification and noted uses of coal ash, see: <http://www.epa.gov/radiation/tenorm/coalandcoalash.html>.

## 2. The Grounding

*After*

After the flood, about half of the ash was sold to one of the poorest towns in the nation, in Perry County, Alabama, a place with a majority African American population.<sup>17</sup> An environmental racism lawsuit filed against the landfill company failed after it received payment from TVA, then filed for bankruptcy.<sup>18</sup> A legal system designed to protect private property does little to renegotiate the sedimented practices of placing waste. Acted upon by workers, planners, waste management companies, the EPA, environmentalists, scientists, and also by my narration here, the ash entered into circuits of profit, knowledge, and institutional order. Labor hours have been expended on its dusty excess, because in its rupture onto the social scene it presented a problem. The solutions devised to deal with this problem demand a return to order. The cleanup process makes money flow, reifies the belief in human control, and hides the mess from visible surfaces.

Suddenly, outside of planned productivity, something previously sitting still in a huge pile abruptly shape-shifted out of its containment. The flood reshuffled the calculations, but not for long. Management strategized the solution to the problem. The

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<sup>17</sup> Shaila Dewan, “Clash in Alabama Over Tennessee Coal Ash,” *The New York Times*, August 29, 2009, <http://www.nytimes.com/2009/08/30/us/30ash.html>.

<sup>18</sup> Molly Moore, “Storage of TVA Coal Ash Waste Leads to Civil Rights Lawsuit,” *Appalachian Voices*, January 10, 2012, <http://appvoices.org/2012/01/10/tva-coal-ash-and-civil-rights-lawsuit/>.

problem seemed to self-evidently define itself as one of waste management. Problems and solutions, in the institutional history of the waste, appear strictly in terms of cost-benefit analyses.

The owners of Arrowhead Landfill, located in Perry County, Alabama, agreed to pay the local government an approximately \$3 million “host fee.” Perry County, the poorest in the state of Alabama and so among the poorest in the nation, with 70 percent black residents, a high unemployment rate, and about one third of its people living below the national poverty line, now relies on the landfill and a private prison for much of the income needed to maintain schools, roads, and other basics of civic life.<sup>19</sup> The landfill serves larger profit motives for absentee landowners. These parties are difficult to track down, as investigators at the now-defunct *Perry County Herald* discovered. Two business entities (Perry Uniontown Ventures I and II, or PUV) that received a reported \$95 million in the coal ash landfill deal filed for bankruptcy in 2010, shortly after an environmental lawyer named the owners in a lawsuit on behalf of the residents living near the waste disposal site. Writers for the *Herald* tracked the business owners and their investors and creditors in a confusing and overly complex web of business relations, involving real estate men and businesses whose names signify nothing. Explaining the debts owed by the landfill companies looks like this, as an example:

PUV also lists two other companies owned by its owner John K. Porter as major creditors: it owes nearly \$2 million in trade debt to Porter’s corporation Team

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<sup>19</sup> Dewan, “Clash in Alabama.”

Porter, Inc. and has a \$600,000 loan from Briarcliff 55 LLC, another Porter concern.

Insurance giant Metropolitan Life loaned PUV about \$1.25 million, as did Ensign Peak Advisors Inc., a Utah investment firm affiliated with the Church of Jesus Christ of Latter-Day Saints. Perry County Commission is listed as a major creditor; with PUV claiming it owes the county around \$780,000 in hosting fees. The company also says it owes Alabama's Dept. of Revenue around \$11,000 in sales tax. Filings also say PUV owes a \$10,000 loan to Seagull Consulting II, an information technology firm based in Naples, Florida; a \$7,695.54 trade debt to First Insurance Funding Corp.; a \$5,395.24 loan to Georgia law firm Hartman Simons, which incorporated both Perry Uniontown Venture I and II; a \$4,112.30 trade debt to Sadat Associates, a Trenton NJ environmental engineering firm; and \$242.25 to Smith & Staggs, Mike Smith's Tuscaloosa law firm.

The filings list the firm's unsecured debts, but its largest creditor by far is the mortgage holder on the Uniontown landfill property itself, a Florida-based private equity firm known as Palm Beach Multi-Strategy Fund, to which PUV mortgaged the property for its \$16.5 million purchase price in 2006. Palm Beach is part of a group of around 25 business entities affiliated with Palm Beach Capital Management. That bank itself filed for bankruptcy protection late last year

following fallout from its participation in a multi-billion dollar Ponzi scheme headed up by Minnesota businessman Tom Petters.<sup>20</sup>

Since litigation ended with the bankruptcy case, the same lawyer now charges a civil rights complaint against the Alabama Department of Environmental Management for discrimination against the town's residents. The US Environmental Protection Agency (EPA) agreed to review the case. But it was the EPA that helped locate the landfill, and encouraged TVA to use it.<sup>21</sup> In the meantime, the waste settled into its new landfill, the last shipment from TVA already completed. Ash dusts residents' porches, cars, and clotheslines constantly.<sup>22</sup> The value of the ash for the town, the landfill operator, the TVA, and for industries of waste cleanup, removal, disposal, and recycling emerge from the pushing about of the refuse of modern life. It moves until it reaches the destination of least value. Then it sits.

When the ash sat in its holding pond in Kingston, it falsely appeared unmoving except to accumulate, or to steadily seep into the earth and water below its mass. It is a human mistake to think its apparent stillness equaled dormancy. Its body always stirred and compressed and reacted and transformed into new chemical and material arrangements, outside of the scope of cultural and scientific visibility. It was never at rest, nor was it ever a unified body or a bounded, singular object. It is excess always in excess of the ways we aim to know. And now some of it sits again, drier and more landlocked,

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<sup>20</sup> Travis Vaughn, "Landfill bankrupt?" *Perry County Herald*, January 29, 2010, <http://perryherald.blogspot.com/2010/01/landfill-bankrupt.html>.

<sup>21</sup> Holly Haworth, "Something Inside of Us," *Oxford American* Issue 82, November 11, 2013, <http://www.oxfordamerican.org/articles/2013/nov/11/something-inside-us/>.

<sup>22</sup> Moore, "Storage of TVA Coal Ash Waste."



but shifting in the wind and compressing and transforming life all the same. As the ash in Alabama blows in the wind, it moves outside of the field of visibility, again. Again, it forms new arrangements with the land and the people around it, new configurations of body, skin, pores, lungs, and environments. The landscape of the town looks different now; a stack of waste from elsewhere takes up space. Unknown to most, this is the broad, gray landscape of lack. This landscape formed of an inability to reckon with the sudden appearance of our collective socio-cultural excess.

What does it mean that we try to continually disappear it? And where are the places that it can be lost from sight, smell, taste, and touch? For power to flow purely and cleanly into modern homes it must pass through a process of purification that results in this excretion onto certain landscapes. The lack of visibility of these places requires social conditioning in terms of value, social and economic, that writes out of history those places where the affective disposition toward one's surroundings does not result in material accumulations of the proper kind. In such places, time is often said to lag or move slowly. It is said that such places are behind.

The designation of backwardness relies on a belief that time progressed. The only people who diagnose backwardness as a social condition either imagine they have passed through it as a past developmental stage, or desire to do so because of belief in the linear temporality of modern epistemology. But backwardness is actually valued in the illusory form of "Appalachia" – a modern myth that sees the mountain landscape as an important relic of the past. The heightened cultural visibility of this trope of Appalachia obscures the present conditions of the East Tennessee landscape as a technological

experimentation ground for the nation. National investment in the region as both a scientific experiment and rural idyll demands full visual restoration of the scenic in Tennessee. A planned aesthetic of lakeside tranquility must be upheld.

The EPA-led cleanup in Kingston achieved this visual restoration. A resident told me that the lake is cleaner than it's ever been, in this man's lifetime.<sup>23</sup> It sparkles now, catches the light, looks clearer. The signs warning against eating the fish still stand, but the murk is gone. The importance of tidiness and order, overcoming the mess, is about containment and disappearance. Tucking the detritus of power away out of sight, the landscape remains conditioned by a collective forgetting of how flows of desire, dreams of a better future, and fidelity to a logic of progress over linear time, the bracketing of difference and continual attempts to homogenize place, physically produce a multi-thousand ton residue each day.

### *Before*

Tennessee Valley Authority formed in response to a problem of material excess. It emerged out of a reaction to unintentionally leftover matter. After WWI, a US government-owned nitrate production facility in Muscle Shoals, Alabama, previously used for bomb production, sat idle. The potential of the wartime leftovers, to go from idle waste to productive matter, determined what became possible.<sup>24</sup> Realizing the potential

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<sup>23</sup> East Tennessee Resident, interview by author, Kingston, TN, June 23, 2012.

<sup>24</sup> Brian Massumi writes, "Potential is the *immanence* of a thing to its still indeterminate value." And, "Possibility is back-formed from potential's unfolding." *Parables for the Virtual: Movement, Affect, Sensation* (Durham, NC: Duke Univ. Press, 2002), 9.

for nitrate to become fertilizer, Senator George Norris drafted a plan to expand government ownership of land in the rural South to create a new, tightly controlled landscape of planned agricultural development and power production for the security and betterment of the nation. Norris worked with Franklin D. Roosevelt to develop this plan. It included a program to give fertilizer to farmers, and population removal from the most fertile riverfront lands to build hydroelectric dams and non-residential parks and tourist recreation areas along the reforested, new lakefronts.

Roosevelt amended to the TVA Act a broader, more ideological vision that included social development to change rural life in the region.<sup>25</sup> Early TVA contained several branches – categorically divided, like academic departments – that used quantitative scientific methodology to study the terrain and the people, with charts and graphs and surveys, in order to advance plans for national social and economic improvement. Before this government intervention, communities farmed the land, maintaining a lifestyle characterized by handcraft, sharing, and physical outdoor labor. The aims of TVA rendered such lives outmoded. In the eyes of the nation, as embodied by early chairmen of TVA who were appointed by the president, the land that these people occupied, and were removed from, was incredibly rich in natural resources. The fact that locals had not harnessed nature to grow profits testified to their backwardness, lack of education, and need for an intervention.

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<sup>25</sup> Michael J McDonald and John Muldowny, *TVA and the Dispossessed: The Resettlement of Population in the Norris Dam Area* (Knoxville: University of Tennessee Press, 2001), 9.

To gain support for this substantial undertaking, TVA leveraged an intensive propaganda campaign to paint a story of the region's people as the embodiment of a national poverty problem, and the land as wild and lacking human control. Once identified as such, the population became one of many fixable problems that science and planning could solve, alongside the problems of flooding, controlling the pricing and flows of electrical power, and conserving nature for aesthetic enjoyment and managed recreation.

The Authority defined flooding as an extremely wasteful, irrational force of human destruction. Depicting floods as wild, treacherous, and dreaded, positioned TVA as controlled, safe, and necessary for security. To promote the construction of several large dams, TVA argued for flood control as a universal social good, establishing a relationship of nation to river and power that, in the post-New Deal decades, spread globally as an ideal of rural development.<sup>26</sup>

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<sup>26</sup> Various memos and reports, including "The Training of Foreign Students by the Tennessee Valley Authority" (July 20, 1950), and "TVA: A Symbol of Resource Development in Many Countries (compiled August 1950), Office of General Manager Files, Record Group 142: Records of the Tennessee Valley Authority 1918-2000 (RG 142), U.S. National Archives and Records Administration (NARA), Atlanta, GA. Reports detail the numbers of students coming to Tennessee to study for longer than two weeks, and notes a sharp increase in the late 1940s, particularly in students from India and China. The report on foreign students states, "The number of students from India is significant. Most of them are technical specialists, chiefly civil, electrical, and chemical engineers, and it is probable that many of them will be occupied on the Damodar Valley Corporation project or other development schemes being undertaken by the Indian Government." The report "TVA: A Symbol of Resource Development," records the scope and magnitude of projects influenced by TVA. A total of 30 foreign development projects are included. Those said to closely mirror TVA are listed and mapped: "TVA on the Jordan," "India's TVA -- The DVC (Damodar Valley Corporation)," "Andean TVA - The Santa Corporation of Peru," "TVA's Contemporary -- Niger River Development --

TVA relied on media to repeatedly advocate for this vision. Arthur E. Morgan, on behalf of the first directors of TVA (Morgan was one of three original chairmen), described the agency's view of flooding and waste in an address delivered over NBC stations on May 21, 1934. Morgan begins the address with the story of a catastrophic flood in Dayton, Ohio, which "destroyed hundreds of millions of dollars of property."<sup>27</sup> He speaks of the flood prevention committee that convened afterward to "prevent such catastrophes in the future," to "secure" the river valley. He uses this example, and the painful memories of destruction and loss, to justify the use of public funds to prevent future disaster. He notes that Roosevelt "sees beyond emergencies... to lift the country out of the terrible slough of despondency..." Among these plans was the Tennessee Valley Authority, intended to "promote an orderly industrial and social development in that limited region."<sup>28</sup> Morgan notes that the Tennessee Valley is "peculiarly suitable" for use as an experimental testing ground for the idea of using government planning to control an entire region's natural resources and improve its human population.

In the following statements, Morgan makes clear his view of the region as in need of authoritative control, in a discursive move that reveals how planning emerges in

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French West Africa," "Rione -- TVA's Counterpart on Uruguay's Rio Negro," "China's TVA -- The Proposed YVA on the Yangtze," "African TVA -- A Development Where the Nile Begins." Additional projects are noted in Australia, Chile, Mexico, Scotland, and Brazil. Bibliographic details point out the influence of TVA research on planners and engineers abroad, or in some cases, name which former TVA engineers were employed (at times as chief engineer) on these development projects.

<sup>27</sup> Arthur E. Morgan, "Text of Address Delivered by Directors of the TVA over NBC Stations on May 21, 1934," TVA Pamphlet Collection, MS.0631, University of Tennessee Libraries, Knoxville, Special Collections.

<sup>28</sup> Morgan, "Text of Address."

response to the irrational presence of the uncontrolled river *and* people. He states, “the great river system of the Tennessee demands unified control to prevent enormous waste of its water power resources... [in the region] ‘rugged individualism’ has stripped the country of its resources... leaving behind a stranded population in poverty and despair. Many of the acute problems of the nation are here calling for solution.” These problems of the nation include, “unplanned agriculture,” which TVA cited as evidence that locals were “destroying” the region and turning the land barren, “unified river control,” through which “the Tennessee River can be made to yield millions of horsepower,” but without unified control will become “an enormous waste of power.”<sup>29</sup>

Waste, a repeated keyword, is defined as *not* developing the river by a vast, unprecedented government agency. Morgan argues, “Our nation must not suffer the waste which lack of planning of this great river system would cause.”<sup>30</sup> Morgan, in a position of literal Authority, invokes the Western dictate against waste to buttress the logical basis of these future dreams. The dreams emerge out of a reaction to a river with the force to destroy and a people whose way of life appeared indifferent to all that he, and the nation, hoped to become. Thus, the seemingly proactive stance of TVA to uplift the region is conditioned by the material remainders (nitrate), nonhuman forces (floods), and human presences (rural backwardness), that exist outside of the framework of authoritative knowledge and ordered productivity. Affective reactions to waste enable new material configurations of the landscape.

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<sup>29</sup> Morgan, “Text of Address.”

<sup>30</sup> Morgan, “Text of Address.”

A profound alteration of the East Tennessee landscape began with the first TVA dam, Norris Dam, in 1936. It sits just north of present-day Oak Ridge and Knoxville, and controls the flow of the Clinch River, which flows down through Oak Ridge and into Kingston, where it joins the Tennessee River. The era leading to the construction of Norris Dam saw thousands evicted from the fertile riverfront land, with their properties assessed for very little.<sup>31</sup> The mass exodus included exhuming and reintering the dead from local cemeteries. The landscape of these former communities is now buried beneath a massive lake, controlled and policed by TVA, and available for boating, fishing, and swimming (with proper permits or within restricted areas), with an idyllic lush forested landscape of TVA-planted trees surrounding the structure of the lake and large dam.<sup>32</sup> Within its first two decades, TVA built over 20 more dams, creating a system of dams and enormous lakes, along with several power plants, at first hydroelectric, then coal-fired, and later, nuclear.

In 1955, the TVA-owned and operated Kingston Steam Plant emerged as the largest coal burning power plant in the world, in order to fuel post-WWII nuclear ambitions.<sup>33</sup> During WWII, the federal government had again displaced thousands of

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<sup>31</sup> McDonald and Muldowny, *TVA and the Dispossessed*.

<sup>32</sup> TVA Pamphlet Collection, MS.0631, UT Libraries, Special Collections, contains several documents that chart the progress of this reforestation effort.

<sup>33</sup> "This Is T.V.A.," n.d., ARC ID 37591, Local ID 142.78, Moving Images from the TVA, RG 142, NARA, College Park, MD. The short propaganda film "This Is T.V.A." is remarkably affective in narrative tone. It traces the humble beginnings of the agency to this "problem area" that is "favored by nature" yet underdeveloped by its human inhabitants, describing them as "primitive" and "handicapped" in farming methods and commercial development. Following the sound of a bomb blast the narrator adopts an upbeat tone to describe "the genius of the engineer" to create some of the largest dams in

farming families and acquired 59,000 acres of land to build a town devoted to the enrichment of Uranium 235 for the first atomic bomb.<sup>34</sup> Oak Ridge began as a “secret city” of the Manhattan Project, flanked by armed guard towers and requiring passes for entry. The rural location was selected due to the isolation of the woods, and the availability of cheap electric power from TVA.<sup>35</sup> Oak Ridge, today the site of the largest science and energy labs in the United States, demands abundant energy. From the 1930s through the 1950s, a rural farming region in East Tennessee’s river valleys transformed into a central infrastructure of American dominance, the US power grid, and the flow of knowledge about energy and development on a global scale. This militaristic infrastructure at Oak Ridge required thousands of workers. After the war, many settled in Kingston, where the population increased as the town became a bedroom community of neighboring Oak Ridge. Though separated on a map with different names, these two towns are intrinsically linked. People, jobs, rivers, highways, and history, all enable a constant flow between these places as parts of a shared landscape.

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the world to improve shipping along the river. Other noted improvements include chemical plants in Muscle Shoals, a TVA pilot program that gave free fertilizer to encourage commercial farming, electricity on dairy farms to increase profits, and the “low cost electric power for which the valley is so well known.” The same film moves on to explain that WWII brought about an overwhelming demand for TVA power, with 12 dams under construction at once, phosphorous and nitrates produced for explosives, and aluminum and rubber production for wartime use – all using TVA power. The narrator describes the bombing of Hiroshima as an act through which “countless lives were saved.” “Then came Korea” and the “threat of global atomic war.” Because of this, defense plants needed “more power than most cities.” The film turns to the Steam Plant, noting that 57% of Kingston’s “24/7” power production was for defense plants.

<sup>34</sup> Charles O. Jackson and Charles W. Johnson, “The Urbane Frontier: The Army and the Community of Oak Ridge, Tennessee, 1942-1947,” *Military Affairs* 41, no. 1 (February 1977): 9.

<sup>35</sup> Jackson and Johnson, “The Urbane Frontier.”



In “The Temporality of the Landscape,” Tim Ingold instructs that the landscape *is* a story, “an enduring record of – and testimony to – the lives and works of past generations who have dwelt within it, and in so doing, have left there something of themselves.”<sup>36</sup> While researching the landscape changes leading to the Kingston coal ash flood, I heard stories of glass jars of radioactive waste unearthed all around Oak Ridge. Many locals, including former Oak Ridge workers, told me about the sediment of radioactive cesium, plutonium, and mercury lining the riverbed that should not be disturbed. This is why dredging was limited in the wake of the coal ash flood, as Kingston is downriver from Oak Ridge. A seam of coal ash now lines the bottom of the river.<sup>37</sup> I heard about Oak Ridge cancer stories, and how all the treatments are fully paid for by the federal government for former workers.<sup>38</sup> There are stories of guards shooting barrels of radioactive waste to sink them in creeks. Across the street from the K-25 gaseous diffusion plant in Oak Ridge, I stumbled upon a recently uncovered “African Burial Ground” – a slave cemetery. Buried under the lakes, former towns; buried in the riverbed, the accumulated waste of American economic and military power. With power

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<sup>36</sup> Tim Ingold, “The Temporality of the Landscape,” *World Archaeology* 25, no. 2 (October 1, 1993): 152.

<sup>37</sup> Cowan, Seramur, and Hageman, “Magnetic Susceptibility Measurements to Detect Coal Fly Ash from the Kingston Tennessee Spill in Watts Bar Reservoir.”

<sup>38</sup> Program details at: <http://www.dol.gov/owcp/energy/index.htm>. An Oak Ridge Press Release from February 2013 announces town hall meetings in Oak Ridge to notify workers of the availability of medical expense funds, mostly for cancers: <http://www.dol.gov/owcp/energy/regs/compliance/pressreleases/esa20130205.htm>. The following charts over \$1 billion, paid to workers from one Oak Ridge facility (K-25): [http://www.dol.gov/owcp/energy/regs/compliance/statistics/WebPages/OAK\\_RIDGE\(K-25\).htm](http://www.dol.gov/owcp/energy/regs/compliance/statistics/WebPages/OAK_RIDGE(K-25).htm).

flowing to Oak Ridge, to private homes, and to cities beyond the South, the landscape alterations that came with TVA realigned national value(s) and government power.

TVA ushered in a profound alteration of the landscape. National development, power generation, rural electrification, resource management, and human improvement in a backward region defined the TVA vision of change, and many of these goals were met. In one post-WWII TVA propaganda film, this story of the agency's development of the landscape concludes that development of any single resource – the river, power, agriculture, the trees and forests – is not enough to “bring the dynamic progress we need.” The narrator boasts: “TVA has welded all these together to make them a working unit of vitality to the nation.” And finally, “The resources are now harnessed, ready for the tasks and opportunities of tomorrow.”<sup>39</sup> Yet, just as the region became aligned with national power, vitality, and the dream of a better future, it also remained a locus of a deep and perpetual forgetting. The largest coal ash flood in US history goes largely unnoticed. The landscape remains bound by ideas about its backwardness, rather than its central role in dreams of the future.

The TVA narrative of a nation harnessing its natural resources to self-improve over time is a modern origin myth, taught in schools throughout the region. This myth depends on a fictional character, cast in the role of victim. The “Appalachian” hillbilly took this leading role in the stories told about the need for improvement.<sup>40</sup> Throughout

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<sup>39</sup> “This Is T.V.A.,” NARA.

<sup>40</sup> Allen Batteau, *The Invention of Appalachia* (Tucson, Ariz.: University of Arizona Press, 1990). My use of “Appalachian” refers to a constructed group identity. It is not how people in the diverse regions it references self-identify. Batteau's ethnography

TVA propaganda – comprising dozens of films and countless speeches and educational materials deployed throughout the nation to shore up support for the major government undertaking and expenditure – a fictionalized version of Appalachia, one drawing on previous decades of local color and caricature, is made highly visible. Through repetition of this vision, of rural poverty and neediness in a rich and valuable landscape, this fictionalized Appalachia remains salient. The temporal condition of “backwardness” – a being outside of modern time – is a presence desired by, even necessary to, the modern subject.<sup>41</sup> This desire for backwardness is a *conjuring* of something in excess of modernity that enables reactions to it.<sup>42</sup>

The success of TVA in reshaping the Tennessee landscape hinges on the reinforcement of a narrative of progress. In a New Deal-sponsored play, *Power*, the drama of TVA’s necessity for the rural poor plays out as a tale of light overcoming darkness. As Act One of the play draws to a close, films showing the Tennessee Valley fill a large screen. The “loudspeaker” characterizes the situation:

In the Tennessee Valley... Parts of seven States, 40,000 square miles, two million people. All living in a region blighted by the misuse of land, and by the wash of small streams carrying away the fertile topsoil. In these cabins, life has changed but little since some pioneer wagon broke down a century ago, and for them this

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details how for over a century, cultural images of the “Appalachian” fixed this identity, while allowing for natural resource exploitation in ways that parallel colonial encounters.

<sup>41</sup> Ann Laura Stoler, *Carnal Knowledge and Imperial Power: Race and the Intimate in Colonial Rule* (Berkeley: University of California Press, 2010). Stoler similarly shows how racial definitions of pre-modern subjectivity were critical to the formation of Western dominance.

<sup>42</sup> Conjuring is a magical incantation. It also means to produce, to make materialize.

became the promised land. Occupations – when they exist at all – are primitive, a throwback to an earlier America. Here stand the results of poor land, limited diet, insufficient schooling, inadequate medical care, no plumbing, industry, agriculture, or electrification!<sup>43</sup>

This announcement encapsulates TVA's origin myth for its own existence. The tenuous status of residents hinges on their temporal designation as outside, and behind, modern time. The sympathy made available to urban progressives – the primary audience for this performance – relies on the racial logic that because they are Anglo-Saxon, they deserve help.<sup>44</sup> This characterization of the population was not invented with TVA, but has a long literary and cultural history, through which the trope of Appalachia as a relic of pre-modern America emerged, and has ever since been maintained.<sup>45</sup> But why do moderns *need* this myth? Why must the place be ancient, a reliquary for travelers to view and visit and reconnect with notions of ancestry and origins? Despite much protestation to the contrary, moderns need their ghosts. Appalachia is an Anglo-Saxon ghost story that reveals modernity's inherent, little-acknowledged irrationality and dependency on that which exceeds its demands for objectivity, logic, rationality, and order.

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<sup>43</sup> Arthur Arent, *Power*, 1.15, in *Triple-A Plowed Under / Power / Spirochete (Federal Theatre Plays)*, Arthur Arent, Arnold Sundgaard, and Staff, First Edition (New York: Random House, 1938): 61.

<sup>44</sup> *Power* was first performed at the Ritz Theater in New York on February 23, 1937. The New York performance of *Power* sold over 60,000 tickets before its opening night. From this success, it traveled to urban centers such as Minneapolis and San Francisco. Hallie Flanagan, "Introduction," In *Triple-A Plowed Under / Power / Spirochete (Federal Theatre Plays)*, Arthur Arent, Arnold Sundgaard, and Staff, First Edition (New York: Random House, 1938), xi.

<sup>45</sup> Batteau, *The Invention of Appalachia*.

The modernization of a rural landscape emerges out of an affective thrust of affirmation. The nation and the public mix together into a current of feelings: of care, hope, and desire for change. Bringing light to the poor – this triumph over darkness and the human achievement it conveys – elicits a response that scientific logic alone does not. It is no accident that in the play, light takes center stage as a character throughout. Illumination as metaphor and as physical flow of electric current combines to symbolically and physically move viewers, naturalizing the value of power as vital life source in modern, well-lit lives.

This is the era, as part of the core affective argument for TVA, that the concept emerges that electric power is a *basic need* for human life, akin to air and water. Before TVA, with private ownership and higher rates, electricity was a luxury. Thinking of the future, and the good of the nation, Congress passed the TVA Act to spread power exponentially, rapidly, and cheaply. As new consumers emerged and the electric grid as we know it was established across the US, the role of TVA as a “cost yardstick” became an integral though easily overlooked aspect of how this became possible. As TVA began operation it deeply undercut private power. The only way for private energy companies to compete was to drop their rates. This, along with the nationwide Rural Electrification Administration campaign to promote electricity use, is how power became widely accessible, though still commodified.<sup>46</sup> All illuminated, the national population entered into visibility, a glowing facet of modernization.

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<sup>46</sup> The Rural Electrification Administration sent friendly teachers, mostly women, into rural areas to hold large tent demonstrations on new electric appliances, most of which

At the beginning of *Power*, a small child asks how much power costs and why. Her father tells her about the kilowatt-hour as a measurement of power's flow. But the child persists: who decides the value of this new, invisible thing?<sup>47</sup> An entire landscape was harnessed as central not only to energy production, but to power's value, because of TVA's "cost yardstick." Electricity is now a commodity, but just barely for most who live in the Western world. It exceeds the description "commodity;" it is an integral life force in the worlds that have been built.

Electricity flows from power plants to illuminate life, but like value, it is an unseen force. Appalachia appears repeatedly in cultural history, available for sacrifice, the site of the authentic, a place of urban longings for the past, for bluegrass, for a simple life, for stories of canning and hunting and fishing and living self-sufficient off the land. It is the site of Lyndon Johnson's War on Poverty, the home of Dolly Parton, and a place of moonshine, rural mythology and romanticization. It is desired. It is a living relic of pasts and legacies that give meaning to the modern. It attracts. But this image disguises how the landscape became the "cost yardstick" of electric power, an act that shaped power's value. TVA is the reason electricity is so cheap that we can take it for granted in the US, perhaps more so than any other commodity. Flick a switch: lights come on. Our need for it runs deep, exceeds culture, has become foundational to it.

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were for domestic use. These corporate-sponsored events appeared to inform women how to choose among the new technologies and use them properly. At the same time, rural electric co-ops, often completely male-run, were established through the agency's government loan program, enabling areas with low population density to purchase the equipment necessary to set up power poles and lines, and then to collect the revenue to pay back the US government loans.

<sup>47</sup> Arent, *Power*, 1.8, 37.

The magic of the value of electricity has its home in the Tennessee Valley. This connection is obscured in layers of separation, enabled by the recurrence of the fictional trope of Appalachia – a myth of temporal dislocation that, in its heightened visibility, conceals the everyday in East Tennessee while it provides a sense of value to development dreams and the desire for progress. Thus Appalachia-as-myth both pre-exists, as valuable past, and is necessarily spawned into perpetual existence in order to allow for ongoing belief in progress over linear time – the past we emerged out of, but can still go visit in the woods. The invisibility of the connection between this landscape and modernity connects to the invisibility of the ash. In the stories that have been told, Appalachia, like the ash, cannot be seen as present. This psychological burial of connection and the ashen detritus share an ontological foundation.

### *Event*

In the years since the spill it has become clear that, despite its status as the largest coal ash spill in US history, this disaster lacks overt meaning and significance. As a national news story with a life span of only a few days, it does not rank among the well-known events with simple names that signify their historical relevance. Bhopal, Exxon-Valdez, BP, Love Canal, Chernobyl, and Fukushima, all call to mind the tenuous relationship among ideas about nature, technology, and progress. In her work on the Bhopal chemical plant disaster, Kim Fortun includes a chapter on Institute, West Virginia, where the same chemical company operating in Bhopal, Union Carbide, leaked toxic gas into the surrounding community. She notes that Bhopal, like the other “major”

occurrences on an environmental historian's list of "significant events," is one of those that "catalyzed public concern about environmental risk." But then she asks, what about those incidents that "fail to ever achieve the status of 'events'?"<sup>48</sup> She notes that media coverage isolates events in a localized place, and assigns them to a moment on a linear timeline. She writes about how this excludes places like Institute, where "the tensions between jobs and safety are high." She concludes, "The contradiction is harsh: events matter, but events are events because they are encapsulated in space and time."<sup>49</sup> The Kingston coal ash flood has yet to be assigned to overdetermined categories of meaning. There isn't a clear-cut sense of how this should matter, or even of its status as an event. It is at once monumental and insignificant. The flood's lack of clear meaning evidences the need for a mode of thought that can acknowledge it as an event in the first place.

Kathleen Stewart, in her book *Ordinary Affects*, provides a paradigm for thinking about events that moves away from meaning, structure, and ideology. She narrates an array of scenes she witnessed over the years, juxtaposing unexpected or curious life events. Scenes of ordinary affects in her book take place in restaurants, parking lots, at work, among friends, or while talking with loved ones. She writes that ordinary affects are an "animate circuit that conducts force... they are a kind of contact zone where the overdeterminations of circulations, events, conditions, technologies, and flows of power literally take place."<sup>50</sup> Ordinary affects, according to Stewart, build intensities that open

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<sup>48</sup> Kim Fortun, *Advocacy after Bhopal: Environmentalism, Disaster, New Global Orders* (Chicago: University of Chicago Press, 2001), 78.

<sup>49</sup> Fortun, *Advocacy after Bhopal*, 78.

<sup>50</sup> Kathleen Stewart, *Ordinary Affects* (Durham, NC: Duke University Press, 2007), 3.



onto possibilities. They are not directly meaningful, but charged with potentiality. They allow for a glimpse of certain modes of knowledge and the relationships that condition them, resonating through their presence. I take from this that Stewart suggests we approach events not as meaningful in themselves, but emergent from and opening onto ways of being that are in flux. The event is a pressure point, a culmination of trajectories in which flows of matter and affect coalesce.

Stewart instructs that the conditions of possibility for ordinary affects are not fixed, but are linked to events, banalities, and overlapping forces. These ordinary affects “literally move things – things that are in motion and that are defined by their capacity to affect and to be affected. They have to be mapped through different, coexisting forms of composition, habituation, and event.”<sup>51</sup> Thus, I analyze this event to understand how and in what ways it emerges from and opens onto affects, values, and patterns of thought. I trace forces that intersect in the ash. The affects flowing through this matter emerge together with a changing landscape of material connections.

The landscape is a social force in rural East Tennessee. This is not just a cultural aspect of life, but a physical presence that exerts influence on the everyday. Tim Ingold points out that the landscape is not simply a backdrop to human life or a pictorial vista, but a dynamic space marked by those who live in and shape it.<sup>52</sup> He calls for a mode of research attuned to traces left in the landscape, such as those witnessed in the coal ash flood and its constitutive materiality. I adopt this landscape perspective and combine it

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<sup>51</sup> Stewart, *Ordinary Affects*, 4.

<sup>52</sup> Ingold, “The Temporality of the Landscape,” 152–174.

with Stewart's definition of affect and event in order to investigate the flows of affect and matter that allowed for this accumulation of ash – a repository of buried connections. This focus on the affective conditions of possibility for the flood allows for a buffer between event and significance. In this indeterminate zone, I study the ash as the unseen, never fully representable excess of modern dreams and desires.

In the moment of rupture, the ash flowed out of its hiding place in a spill of layered sediments – each layer of particulate a temporary resting place for a forceful flow of matter spurned into motion elsewhere in space and time. In the years since the Kingston Steam Plant began operation, these flows mixed up in a gigantic hole in the ground, blurring any distinction between points on a timeline of linear history. In the flood, a gray mesh of pasts spilled out: present.

Atemporal and lacking in significance, coal ash is a material remainder forgotten, kept perpetually out of sight. The vital, electric flows of which the ash is the forgotten byproduct power a future that comes after *this*. The desire for positive transformation and change, through planning and technology and science, hopes to create a better future while real change floods out all around us. Desire, an affect, “literally moves things,” because it wants what it lacks. Out of the void of desire, an absence with a pull, forces move earth and bodies. A void, paradoxically, possesses a substance – a force. Voids can be left in the wake of something's passing or disappearance. For example, a void is left in a heart or in a family with the death of a loved one. Souls come into being and out of the void by way of the miracle. This discussion of void is not about a state apart from materiality. Sediments build up from various and different absences. Black holes are one

of the most amazing phenomena because they are a sucking into and out of matter where the rules as we know them collapse. There is not one black hole. There are multiples, and undoubtedly, they are all productive of and emergent from different consistencies and qualities. So too exist multiple coal ash ponds. A coal ash pond in East Los Angeles or one in Uruguay will have a different set of relational conditions than the one in East Tennessee. This ash is just one example. But there are absences on which its presence is contingent, and this is what I refer to as void.

Voids may be co-constituted with the affects that condition them. Neither needs to pre-exist for them to be a thing that exists, or rather, a form of existence.<sup>53</sup> There are characteristics to this form of existence: absence, vacuum, nothingness, the space in between things, the irreducible nature of true difference. A void is an organizing force despite its condition of absence. If I get up from a chair and leave a room silently, where several other people sit around a table talking, there will become a presence to my absence. The silent void left in my wake may raise questions, concerns, desires to move or speak or ask new questions. There is also a void within subjectivity. It is the condition of desire.

Desires that cohere among multiple beings allow a larger scale of organized movement: the social, norms, the nation. Overlapping such categories, though, are points

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<sup>53</sup> Bruno Latour, “Reflections on Etienne Souriau’s *Les Différents Modes D’existence*,” in *The Speculative Turn Continental Materialism and Realism*, ed. Levi Bryant, Graham Harman, and Nick Srnicek, trans. Stephen Muecke (Melbourne, Australia: re.press, 2011), 304–33. In this essay, Latour dismisses discussion of voids while cataloguing multiple modes of existence. However, based on the qualities he uses to determine the various modes, I suggest that voids could constitute an additional one.

of contact among infinite other networks and modes of existence.<sup>54</sup> The fact that there are some generally shared desires among groups becomes a basic condition of knowledge production with a given mode. Perhaps everything becomes defensible in this way, if by way of cataloguing the modes of existence, the acceptance of a multiplicitous universe grants that no one thing has to be reduced for the other to be exalted. Toni Morrison challenges: “If you can only be tall, because somebody is on their knees, then you have a serious problem.”<sup>55</sup> She’s talking about what racism enables white people to feel. She is challenging Charlie Rose, asking him: how does he feel? The challenge to examine superiority feelings in order to abandon them is a lesson academia in general still has yet to learn. What is a way of being that for all, life is affirmed? What is a way of knowing that could offer us this mode of being? This isn’t about utopian dreams, denying death, chance, or the negative brutality that is known to exist. This isn’t about progress, promoting anything, or an intervention. It is simply an accounting of the realities pertaining to this disaster. If inadvertent destruction is built into the knowledge, infrastructure, values, and exchanges that reshaped the landscape to allow for this disaster, then the task of thinking through the conditions of its emergence is large enough for now. What follows is an account of the ways absences, lacks, voids, the emptiness at the heart of world building dreams and desires, produce matter. What follows is a genealogy of power.

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<sup>54</sup> Latour, “Reflections.”

<sup>55</sup> Toni Morrison Takes White Supremacy to Task.” YouTube video, 2:43, clip from a televised broadcast of Charlie Rose on PBS from 1998, posted by TheAntiIntellect, March 24, 2012, <http://youtu.be/6S7zGgL6Suw>.

### 3. Pilgrimages

The secret spiritual force of the Appalachian Mountains draws travelers into its belly. Like the pilgrimage routes of the early Christians, who traveled to behold the relics of Christ in reliquaries throughout Europe, pathways of spiritual migration shape the Appalachian terrain. These are the pathways of desire, into and out of the woods. The relics sought here are people and things that bear the trace of a lifeway immortalized as pure to the extent that it is beheld as outside of modern time. Conjuring a magic in which linear time ceases enables the transmutation of the spirit that takes place in the encounter with the ancient Appalachian relic of a human life. The encounter takes place by crossing a temporal border. The pilgrim leaves calendar time, and enters timeless spiritual nature via the encounter with the relic. Becoming obsessed with this magical possibility, the pilgrim thus enchanted, returns again and again. He becomes captive to the possibility of an experience akin to time travel. He desires it as an escape from the modern.

The value of the human relics is held in the highest regard, for these ancients unwittingly enact for the pilgrims the possibility of an outside to modernity. Themes and tropes emerge from these pathways of encounter, are reported back to the national citizenry, and enable further seeking. The themes pertain to the past, to ancient ways, to spiritual discovery. The difference sought and repeatedly discovered in the mountains is always of time. "Appalachia is the past within the present" (a finding discovered in 1880, 1930, 1960, 1970, today). The modern seekers often become enraptured people. Their

devotion to the idea of the Appalachians – as a people and place apart, the past within the present, pure, pre-modern, self-sufficient, noble, possessing a higher form of knowledge about life – marks them as spiritual believers. They seek a profound reordering of the soul, to allow the soul to revel in and absorb some of the power of those for whom modernity never came to fruition. The seekers I describe always bear the marks of modern achievement. They are always highly educated, urbane, cultured, and disenchanting with the quality of the world they inhabit.

Two exemplary pilgrimages illustrate these themes, and the ways they retrace the already extant pathway of desire between the modern and the Appalachian. These two stories are offered in comparison for elucidation of the repetitive phenomenon of atemporal encounter in the woods. With these, with the reproduction of each for secondary audiences not present at the site of encounter, we witness Appalachia renewed as a gift, a source of value, a site of multiple kinds of resources and treasures.

Angst, a desire for an “out,” and a sense of bewilderment with modernity drives each of these men into the heart of Appalachia to seek an authentic alternative to bourgeois ambivalence and melancholy. I cannot critique these people’s lives, actions, and beliefs. There is so much possibility, so much potential in these iterations and interactions. These traces of encounters are mere examples, glimpses into the psychology that unfolds in this landscape of desire. I am concerned with these examples because they show tensions over how this landscape is valued. To the extent that the seekers in these encounters, the pilgrims, need and want Appalachians, what is enabled? What moves? What emerges and what remains hidden or forgotten?

The pilgrims are enraptured, but with what, and why? In their descriptions, it becomes clear that while they love and revere their interlocutors, the marks of difference appear in the specific form of a man's voice and a woman's hands – bodily aspects that stand out to the pilgrims as limits where one world ends and another begins.

*Not the Song Itself But the Way He Sang It*

John Cohen worked as a folk music collector from the late 1950s through the 1960s. While a student at Yale, he collaborated with beat artists and formed a folk revival band, The New Lost City Ramblers. He described himself as an existentialist and lover of old time Appalachian music. He released a folk compilation album, *Mountain Music of Kentucky*, in 1960. This album features Roscoe Halcomb, a man whose musical style, in particular his singing voice, inspired Cohen to return repeatedly to Halcomb's Kentucky home to listen to and record his songs. Cohen traveled with Joel Agee (son of James Agee) to Kentucky to produce a documentary on old time music, *The High Lonesome Sound* (1963).<sup>56</sup> The documentary features Halcomb, whose music brought the film to the attention of pop icons such as Jim Morrison and Bob Dylan.<sup>57</sup> Out of this encounter,

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<sup>56</sup> John Cohen, *The High Lonesome Sound: Kentucky Mountain Sound* (United States Office of Economic Opportunity, 1963), The Internet Archive video, 30:16, from National Archives, ARC ID 72830, <http://archive.org/details/TheHighLonesomeSound1963>.

<sup>57</sup> Scott L. Matthews, "John Cohen in Eastern Kentucky: Documentary Expression and the Image of Roscoe Halcomb During the Folk Revival," *Southern Spaces*, August 6, 2008, <http://www.southernspaces.org/2008/john-cohen-eastern-kentucky-documentary-expression-and-image-roscoe-halcomb-during-folk-revival>.

Halcomb became for many musicians the “face of the folk music revival.”<sup>58</sup> He had worked as a coal miner and general laborer, and traveled in search of work during times of unemployment. He lived with his family in eastern Kentucky, and became a subject of folk music history after “discovery” by John Cohen. Because of this encounter, he was described as among the most authentic performers of old time music, and was invited to play at a number of festivals during the folk revival. National audiences embraced Halcomb for his banjo and guitar talent, and for his unique evocative vocal style – the voice that captured Cohen’s attention and sustained devotion.<sup>59</sup>

In an in-depth study on Cohen and Halcomb, Scott Matthews describes Cohen’s first trip to Roscoe Halcomb’s home. Cohen traveled the region collecting folk music. He recorded at nightly music venues, or asked locals about where to find players in the community. Such an inquiry led him to Halcomb’s doorstep, where he arrived and asked residents to play him music. At the Halcomb home, he first heard relatives of Roscoe, a nephew and an aunt, play their banjos. Then, returning from work, Roscoe appeared. Cohen asked him to play. Halcomb’s voice immediately moved and deeply affected Cohen. He describes this first encounter:

“My hair stood up on end,” Cohen later remembered. “I couldn’t tell whether I was hearing something *ancient*, like a Gregorian Chant, or something very contemporary and *avant-garde*. It was the most moving, touching, dynamic,

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<sup>58</sup> Matthews.

<sup>59</sup> Matthews.



powerful song I'd ever experienced . . . *not the song itself but they way he sang it* was just astounding.”<sup>60</sup>

In the entire in-depth portrait of the Cohen-Halcomb relationship, compiled and analyzed with great care by scholar Scott Matthews, certain themes recur throughout the narrative. Cohen repeatedly mentions his sense of temporal dislocation in Kentucky. The sights and the sounds appear to him as at once futuristic, something aesthetically advanced, and rooted in place and tradition, something pre-modern. He also speaks of Halcomb's voice as the most authentic carrier of this atemporal magic.

Once recorded and released, Cohen's compilation, *Mountain Music of Kentucky*, introduced a broad audience to the sounds of eastern Kentucky musicians. The compilation includes musicians from various social and economic positions, yet critics determined that Halcomb was the star of the record, for the same reasons Cohen valued him as the ultimate expression of the art form. A *New York Times* review of *Mountain Music of Kentucky*, from 1960, describes the singers as being “rooted in the earth” with the “lusty propulsion of their music reflect[ing] it.”<sup>61</sup> Halcomb, in particular, is said to convey a purity that comes from his isolation from modern and commercial forms, and is described as a “bed-rock roots musician.” Described as from the earth and possessing “lusty propulsion,” the music invokes a kind of sexuality, a lonesome desire projected through space and time. The distance between the folk enthusiast and the folk relic are at once collapsed in space, and enhanced in time. In the moment of song, Halcomb's voice

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<sup>60</sup> Matthews (my emphasis).

<sup>61</sup> Quoted in Matthews.

touches the ear, the brain, the spirit in a physical closeness; at the same time, it is beheld, cherished, and valued as from a time outside of modernity, perhaps from time immemorial, as evidence of modernity's limits. Cohen, who helped bring this sound out of "isolation" and into the public consciousness, is described as a sympathetic mediator who treasured the music's aesthetic qualities above all else.<sup>62</sup> Within *Mountain Music of Kentucky*, the pathos of the music (evocative of blues, gospel hymns, and traditional ballads), Halcomb's quavering voice, and a sense of emotional connection over the isolating qualities of modernity shape the value of the record for national audiences; it is not the stories or lyrics, but the feelings delivered through the sound that is the source of fascination. It is beyond literary interpretation, a non-linguistic force that comes out of a particular body, in a particular landscape, imbued with a particular notion of time.

In the essay "Witchcraft," Rosalind Morris uses Frank Sinatra's singing voice as an example of how talent such as this exceeds any notion of individual agency. She writes about how the power "to move people with the force of song requires that music lift off from language, and from meaning, to be more than the content of the lyrics – and, at the same time, to animate them with this now foreign seeming element."<sup>63</sup> The element she speaks of is sorcery, magic, witchcraft. It is described as "*now* foreign seeming" because she writes from the position of American modernity, and seeks to discuss music as the last remaining realm in modern society where "Americans permit to be suffused by

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<sup>62</sup> Matthews.

<sup>63</sup> Rosalind Morris, "Witchcraft," *Social Text* 26, no. 2 95 (June 1, 2008): 113.

powers that can undo someone, that can undermine reason.”<sup>64</sup> She explains how this is possible in modern popular music and song:

When we are transported by music with lyrics within the field of popular song, it is because song has split wide open along the fault line of the difference between the two voices – the embodied voice of a historical discourse and the textured expression of subjectivity. The singer as magician confuses the two and makes words seem his own by giving them the sound of his body.<sup>65</sup>

Thus, she explains, we do not “confuse singing a Sinatra song with quoting him.” “He merely lent these songs his voice, which then dominated all else. It is when this force returns to the linguistic element of the lyrics that we can speak of something like witchcraft – but that is possible only because they have first been separated.”<sup>66</sup> Morris is talking about the difference between the words of a song, and the quality of the song as sung by a particular voice, embodying a historical and environmental context. Roscoe Halcomb often sang traditional bluegrass songs and church hymns, tunes that many old time musicians in the region repeat at bluegrass nights and regular musical gatherings to this day. But when Halcomb sang them, Cohen and the audiences who embraced his recordings were spellbound by the sound given to the music by his body, his lungs. In Halcomb’s powerful delivery, the reunion of things separated – the extra-corporeal embodiment of a sound made by a particular body, and the lyrical content as linguistic signs and stories – take on a force that moves. Cohen was moved to the extent that after

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<sup>64</sup> Morris, “Witchcraft,” 113.

<sup>65</sup> Morris, “Witchcraft,” 115.

<sup>66</sup> Morris, “Witchcraft,” 115.

first hearing Halcomb sing on the front porch of his Kentucky home, he returned repeatedly from New York to Kentucky. At home in New York, Cohen and his band tried again and again to imitate this sound in their own music performances, but Cohen felt compelled to return to Kentucky to get closer to the powerful source of his rapture and devotion. His body was possessed by the spell of this sound. In fact, the shape of the rest of Cohen's life bent to this voice, this music, as he sought the meaning of the encounter until his own death. The spellbinding was immediate, and lasting. It caused Cohen to seek new venues for the sound, while continuing to mine its depths.

After the release of *Mountain Music of Kentucky*, Halcomb was able to book a number of performances in urban centers, on college campuses and at folk festivals. Yet a dissatisfied Cohen noted that Halcomb seemed uncomfortable, not himself, and out of place on the city stage. A video of Halcomb playing on a TV show hosted by Pete Seeger depicts a stage set up to look like a homely family living room with quaint furnishings.<sup>67</sup> As Halcomb plays rigidly for the TV cameras, an eager-looking Seeger alternately leans back in his chair with fingers laced behind his head and a grin on his face, or leans in and stares intently at the guitar work of Halcomb, who is sharply dressed in a suit and fedora for the appearance. While playing two songs, Halcomb seems rushed, and his voice lacks the calm and emotive qualities Cohen witnessed back at his home in Kentucky. Halcomb coughs repeatedly. Cohen remained unsatisfied with both *Mountain Music of Kentucky* and with Halcomb's urban performances. After some time, he decided to return to eastern Kentucky, with Joel Agee as an assistant, in order to make a documentary film in the

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<sup>67</sup> Matthews.

hopes of capturing the power of Halcomb's style in a way that might give expression to what he felt at the first encounter – the moment he came under this spell. Scott Matthews notes:

Cohen attempted to resolve the tension between the documentarian as exploiter and appreciator, and perhaps placate his conscience, by understanding songs, people, and places not as things or objects to be collected, catalogued, and torn from their human sources but, rather, as more ethereal and “spiritual” traces. This interpretation allowed him to see his documentary work not as cultural theft but as a cultural gift to audiences who might be similarly moved by the people and the music.<sup>68</sup>

Cohen's quest in publicizing this music was never to monetize it, but to spread its transformative power. He wanted others to become similarly spellbound. Yet the struggle to achieve this troubled him. As Matthews makes abundantly clear, Cohen wrestled throughout his life with the ways his passion might be misread as either exploitative or misguided due to its resemblance to outdated anthropological methods and impetuses. Cohen was aware that his rapture would necessarily be questioned and critiqued.

Morris instructs that where there is witchcraft, there will be accusation. In American society, such accusations indicate something has taken place that “exceeds the political” even if the thing in question has “political effects.”<sup>69</sup> Morris writes that this excess is the force that can lead to harm, as witchcraft carries the specter of violence.

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<sup>68</sup> Matthews.

<sup>69</sup> Morris, “Witchcraft,” 118.

Further, witchcraft connects to another “matter” out of place, that of libidinous pleasure expressed publicly, such as the pleasure of the accusers in a witch-hunt. “Sexuality in the public sphere” threatens the American social fabric because “it can dissolve the boundary – so tenuously erected in the aftermath of the Enlightenment – between privacy and publicity.”<sup>70</sup> While Morris speaks of this public sexuality in relation to the desire of the accusers, the point also applies to the magic of folk music. One of the most common forms of accusation against lovers of the folk is that of “romanticization.” This romance dissolves a boundary erected in the linear temporality of modernity and progress. Loving the relic of the past, of tradition, threatens institutional order because it undermines belief in progress. The critique of romanticization, whether it takes place via academic jargon or popular press, seeks to diffuse this threat by ridiculing or shaming the publicly expressed trans-temporal desire of the romantic in order to restore the boundary between private and public, past and present. Such accusation serves to uphold the notion of linear time, and progress over time as a mainstream value.

No sooner than Cohen had released his music compilation and made his love public than an accusation of witchcraft appeared to critique it. In a *Mademoiselle* article by Susan Montgomery, from 1960, (quoted in Matthews’ study), Montgomery writes:

“These young adults diligently learned their instruments and the significance of the songs they sang, becoming, as John Cohen acknowledged, the ‘best city folk musicians.’” These same people, Montgomery observed, often wished “*they’d* come from the Kentucky mountains or (depending on the music they play) that

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<sup>70</sup> Morris, “Witchcraft,” 118.

*they* had been born Negroes... The sounds and emotions these students sing so furiously are eventually incorporated into their consciences. They are, in a sense, bedeviled people who, even though they are fine musicians, should be counted among the casualties of contemporary American life.” The folk revival, according to Montgomery, functioned as a religious movement led by idealists and romantics like John Cohen – “seekers, value hunters and extremists who are willing to go all the way for something they believe in...”<sup>71</sup>

Montgomery’s witchcraft accusation displays the need to disregard magic that she no doubt understands to have taken place. Rosalind Morris explains:

Such accusations thrive on belief, but they can exist only in the space of doubt. They are loquacious, but they invoke the unspeakable. This is also why it is so easy to *say* that one doesn’t believe in witchcraft, even when chasing witches. To speak of it is already, in some way, to depart from it. Witchcraft thrives precisely in those domains where words and discourse are not enough to explain the world and even their own force.<sup>72</sup>

Montgomery knows the people are possessed. That is why she urges readers to count them among the “casualties of contemporary American life.” They went beyond modernity’s temporal limits; we must believe them dead. Because they went “all the way” (like a naïve first sexual experience) in their passionate desire to become something other than what their bodies and locations seemed to indicate and dictate – upper class,

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<sup>71</sup> Matthews.

<sup>72</sup> Morris, “Witchcraft,” 119.

educated, modern, white, American men – the bedeviled are discursively killed.

Romantic transgressions are publicized in the national press as an instance of religious extremism. And yet, here is the national press, inadvertently giving voice to the fact that such spellbinding took place.

Morris notes, “American society presumes that witchcraft is a delusion,” and that this forms part of the “fundamental self-representation of America as a society liberated from witchcraft.”<sup>73</sup> And yet, “witchcraft accusations are precipitated when an event occurs for which there is no adequate explanation.”<sup>74</sup> Montgomery’s witchcraft accusation recognizes that something took place that is beyond the scope of logic and its supporting epistemologies and discourses. To the extent that modern academic practices, such as discursively centered cultural studies, seek to similarly relegate the romanticization of the folk to a kind of identity labeling, these acts of categorization and relegation diffuse threat by restoring the public/private boundary through recourse to logical critique. Making sense of the insensible through logical analysis helps reconstruct the appropriate boundaries. To critique Cohen as a romantic utilizes language to foreground an idea about his subjectivity – as if someone like Cohen has any conscious control over the bewitching effect he underwent. Cohen is not a delusional man; rather, he is quite rational. Educated, articulate, and seemingly caring about those he recorded, he nonetheless remained perplexed about the bewitching himself. He devoted much of the rest of his life to trying to rationalize the irrationality he experienced in his

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<sup>73</sup> Morris, “Witchcraft,” 119.

<sup>74</sup> Morris, “Witchcraft,” 119.



pilgrimages to Kentucky. Part of his confusion stemmed from his entanglement with another person, Halcomb, who continued to live in poverty and lack basic resources, despite Cohen's sense that Halcomb gave to culture a great gift, the treasure of authentic folk music.

Cohen struggled with the fact that Halcomb did not see any significant monetary return for his gift to culture.<sup>75</sup> Cohen bears witness to a kind of economic violence beyond his control in this encounter. This, too, exceeds individual subjectivity. Morris notes of witchcraft that it is “cathartic theater in its purest form – tragic, universal, written in blood, and always failed.”<sup>76</sup> She writes that where witchcraft occurs, there is tragedy, a kind of social violence in which old orders are “annihilated” and new orders “cohere.” These new worlds “arise only after the visitation of death.”<sup>77</sup> She notes that where we see witchcraft and its trials, across the past and throughout the world, we see corpses. This passage is key:

What is specific to witchcraft is that the new order carries within itself the seeds of the same morbidity. It is always haunted by old fears, which manifest themselves in new accusations and efforts at expulsion. It is an unending cycle, structured less by the real resolution of conflict than by the ebb and flow of those energies *required to combat death by killing*.<sup>78</sup>

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<sup>75</sup> Matthews.

<sup>76</sup> Morris, “Witchcraft,” 116.

<sup>77</sup> Morris, “Witchcraft,” 116.

<sup>78</sup> Morris, “Witchcraft,” 116 (my emphasis).

This is precisely what we see in the repeated, centuries-old patterns of Appalachia-loving. There is a symbolic death (of nature in the late nineteenth century, of the folk-as-nature in the mid twentieth), in which the enchanting element of the woods is sacrificed. Then, there is the building up of a nation with those mined resources. Finally, the nation – as represented by its most privileged citizens – laments this loss, and attempts to make the gift return. America is given timber, coal, electric power, a folklore, and an origin myth. Appalachia, source of power, seduction, and enchantment, is made to die. Lovers of Appalachia want to preserve nature, protect the woods, and restore humanity to the people. The cycle repeats. What is extracted from both the mountain in the form of coal and from the Roscoe Halcombs of the region in the form of music and voice are life-giving energies that help a modernizing, progressing nation evade its own death.

Roscoe Halcomb's body, the physical carrier of his spellbinding power, is the stage of the killing required to combat death. Halcomb had worked as a coal miner. Cohen noticed the cough emanating from his blackened lungs at their first meeting. In Halcomb's letters, he repeatedly notes he's been sick, or had a cold.<sup>79</sup> In one personal letter, he notes he is "down to 116 lbs." but still desperate for work.<sup>80</sup> He was diagnosed with emphysema and stomach ulcers. During his brief time as a touring musician, Halcomb appeared at a folk festival in Germany, for which he was paid \$750. Because of this, his public assistance money was cut off. In these performances, an ailing Halcomb became increasingly frail. He stopped songs and broke into a violent cough, leaving

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<sup>79</sup> Matthews.

<sup>80</sup> Matthews.

audiences stunned as he exited the stage without finishing the performance. In these performances, his body was completely given over to the modern audience that consumes both the power of his voice and the power granted through his labor as a miner. These powers collapse in his lungs. In his body, all of the value of Appalachia coheres. This is how his voice gained its spellbinding power for John Cohen.

In an essay titled “The Miner’s Ear,” Rosalind Morris highlights the ways a miner’s cough can blur the lines between “the sound effect of the body and language.”<sup>81</sup> The cough, she argues, is a kind of discourse – a communicative and thus affective force that, like language, tells a story via a sign (the cough) loaded with the baggage of its history. Yet this sound is still the sound effect of a body. When Roscoe Halcomb sings his high-pitched, crackly, sorrowful song, he not only gives voice to the spiritual embodiment that music allows, but does so via an instrument shaped by the labor of mining. His singing lungs breathed the coal dust that profoundly shaped his health, breath, and voice. Morris writes:

The miner’s lung absorbs the stone pulverized by the drill, and in the lung’s spasmodic effort to guard the body’s sovereignty, it converts the muteness of stone into the “language” of coughing. The miner’s lung, soft, pink and fading to grey, scarred, torn, and clogged with fluid, is the unlit stage for the drama of Death.<sup>82</sup>

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<sup>81</sup> Rosalind C. Morris, “The Miner’s Ear,” *Transition* no. 98 (January 1, 2008): 108.

<sup>82</sup> Morris, “The Miner’s Ear,” 107.

This returns us to the key passage about witchcraft accusation and its relation to death. When Cohen was written off as “bedeviled,” in the witchcraft accusation by Susan Montgomery (who gives voice to a kind of critical tradition we are familiar with in academic circles as the critique of romanticization) he was cast aside. However, unlike in Salem, modern Americans do not need to burn Halcomb at the stake or drown him for his bewitching power. His death has already been arranged by the epistemic order that Montgomery, within the bounds of this witchcraft accusation-as-critique, represents.

*Her Log Cabin Was A Time Machine*

Eliot Wigginton, upon finishing a B.A. and M.A. in education at Cornell, traveled in 1966 to northern Georgia (“right in Appalachia”<sup>83</sup>) to teach 9<sup>th</sup> and 10<sup>th</sup> grade English and geography. He started a project, which became a book series, *Foxfire*, as a student-written magazine and commercial endeavor to foster writing skills and contribute to student economic agency. He describes *Foxfire* as a transformative experience for students likely “drinking Colt 45” and taking acid at night before coming to school.<sup>84</sup> Through his folk ethnographic project, students learned how to collect life stories from elders in the mountain region. The magazine extended into a multi-volume book series, selling millions of copies. The books, still in production today, can be found at high-end

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<sup>83</sup> Eliot Wigginton, *The Foxfire Book: Hog Dressing, Log Cabin Building, Mountain Crafts and Foods, Planting by the Signs, Snake Lore, Hunting Tales, Faith Healing, Moonshining, and Other Affairs of Plain Living* (Garden City, N.Y.: Anchor Press, 1972), 10.

<sup>84</sup> Wigginton, *The Foxfire Book*, 10.

boutiques in cities alongside goods and wares in keeping with the resurgence of rustic, heritage Americana aesthetics and lifestyles.<sup>85</sup> The books fit into a popular folk, back-to-the-land aesthetic. The value of the books hinges on the sense of dislocation from modern urban life portrayed in the stories, and the way they are told. Eliot Wigginton's passionate writing in the introduction of each book displays an outpouring of emotion that comes from the overflow of feelings sparked by one particular encounter in the woods. In creating *Foxfire*, Eliot Wigginton became captive to the spiritual power of Aunt Arie.

Out of the hundreds of interlocutors populating the *Foxfire* stories, Aunt Arie captured the national imagination as well, in a way parallel to the story of Roscoe Halcomb. She is the person who became the subject of the award-winning *Foxfire* stage play, performed in metropolitan areas, primarily in New York City. In the very first *Foxfire* book, she is featured on only 13 short pages of the nearly 400-page volume, 3 of which feature large black and white photographs of her and her log cabin. Within those pages, she narrates her life and displays her vibrant personality to the schoolchildren while they participate in helping her remove the eyes from a pig's head that she received as a gift from a neighbor. Tugging at the eye with her paralyzed hand, she enlists the oral historians to help her pull, and eventually saw the eyes out of the pig's head. This human-animal touching is the activity around which her story unfolds.

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<sup>85</sup> I have seen the *Foxfire* books in Minneapolis at upscale menswear boutique Martin Patrick in 2011, at Self Edge in San Francisco (a designer denim store that specializes in Japanese denim that can retail from \$300 to \$600 a pair), and most recently at the 2013 West Coast Craft show in San Francisco. Professor Karen-Sue Taussig first informed me about the existence of *Foxfire*, as she recalled its impact on her mother's friends in Berkeley during the late 1960s and 1970s.

The section on Aunt Arie contains several key introductory passages that situate the powerful effect she had on these visitors – the schoolchildren and Wigginton. Before we meet her, the introduction to her chapter states:

Aunt Arie refuses to leave [the house she shared with her late husband for decades]. With her husband’s clothes still hanging inside, washed and ready to wear, her home has become a *sacred place* over which she alone must now keep watch. Her occasional visitors are also *sacred*, as we were shown when she said, on our arrival, that she had wanted to go somewhere but had stayed home simply because she felt like someone was coming.<sup>86</sup>

This introduction to the chapter on Aunt Arie provides a sense of her bewitching qualities, allowing her home to appear sacred. It continues, “It is somehow reassuring to know that even now, in *our time*, there are Aunt Aries *left* from an age which has so much to teach us.”<sup>87</sup> As editor of the book, Wigginton includes another note from a student on first meeting Aunt Arie:

It wasn’t until I had worked on *Foxfire* for five months that an inexplicable *void* between myself and the old people of our region disappeared. *This void was mysterious, but it still existed...* Then I met Aunt Arie. It was a cold day and I remember our jeep traveling far back into a remote area... *Her log cabin was a*

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<sup>86</sup> Cook, quoted in Wigginton, *The Foxfire Book*, 17 (my emphasis).

<sup>87</sup> Cook, quoted in Wigginton, *The Foxfire Book*, 17.

*time machine* taking me back to the eighteen eighties... Everything she had... made me stop and look deeply for the first time.<sup>88</sup>

Wigginton and his students introduce their encounter by highlighting the appearance of the folk as artifact and spiritual relic, something from a pre-modern past accessible only by time machine – a technological fantasy of what will be possible in the future. Essential to the sense that Aunt Arie is sacred is her temporal dislocation. Her log cabin is a border zone where these moderns cross back into another time. Once there, they become immersed in another world.

The value found in Aunt Arie's cabin lies in her everyday life, tasks, and knowledge about how to make a living utilizing her surrounding resources. Her work is done by hand – her quilts, baskets, food, and garden all require daily manual labor, which over the years has worn out her hands. Her habits and routines, as well as her apparent detachment from mainstream culture (which the text claims but also undermines later with stories of her many visitors and interactions with multiple communities – including the visitors writing her story), seem to position her as an ideal folk relic. Her spellbinding power emerges from her body and her home.

The narrative focuses on her damaged, elderly hand tugging at the eyeball of a dead pig. The scene is visceral, bloody, a physical struggle of human hands digging hard into pig eye sockets. She draws her visitors into the struggle, asking them to help, offering them a hand saw, and cautioning them not to pop the eye and let the black goo run out. She's not at all squeamish about dead animals, she explains. She just doesn't

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<sup>88</sup> Paul Gillespie, quoted in Wigginton, *The Foxfire Book*, 18 (my emphasis).

want to see it.<sup>89</sup> The visitors, with Wigginton, join her and cross into a zone of dead animal intimacy.<sup>90</sup> With her hands and with the dead pig head and its eyes, the modern visitors assist in the final acts of a butchering process that involves neighbors who gave the head as gift to Arie, so that she might have some of the remaining meat. The neighbors, who had the rest of the pig's fleshy carcass to eat, give of its body the nourishing power remaining in its most unsettling feature for human pork eaters: its face. The exchange of the head, severed from the body, takes place within an agricultural ethic stemming from the domestication of the pig and the practices that render its body into numerous pork products. The keeping of pigs ensures survival, and gives pleasurable nourishment. The gift of the neighbors is a sharing of the most undesirable remains.

For Wigginton and the students, the butchered head becomes a noteworthy subject. The presence of the pig head testifies to the temporal dislocation of Aunt Arie. She doesn't shop at a supermarket in the 1960s; her alterity is marked by her possession of this pig's head and her use of it. She is a woman alone in a cabin with particular tools and resources, and these things contrast starkly with the image of midcentury American female domesticity. Her life becomes remarkable to Wigginton and modern audiences because of a desire for escape from modern time and its normalizing dictates. Her status as sacred relic is a value wrought out of this desire. Her use of the head is not something

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<sup>89</sup> Wigginton, *The Foxfire Book*, 19-26.

<sup>90</sup> Donna Haraway writes, "Hunting, killing, cooking, serving, and eating (or not) a pig is a very intimate personal and public act at every stage of the process," *When Species Meet*, 298.



noteworthy or sacred to Arie, who is fixing something to eat from scarce resources, but it becomes sacred to Wigginton, the pilgrim.

As Eliot Wigginton describes meeting Aunt Arie, his own fascination and wonderment, a spellbinding that would continue for the rest of his life, becomes apparent. Wigginton later recalled his feelings about that moment. He, “for some inexplicable reason” felt “enormously embarrassed” about this entrance into her home.<sup>91</sup> Yet, after that initial intrusion, Wigginton describes an ongoing relationship with Aunt Arie that would last until her death. He repeatedly visited her at her home. He took nearly all of his subsequent students to meet her until she died. He describes being “permanently drawn” to her; “furious” when he learned that antique dealers probably “laughed all the way home” about taking “loot” from “this stupid mountain woman,” such as her mother’s handmade spinning wheel sold for a mere five dollars. He was confounded by her disregard for a theft. He recalls her laughing at the theft, pointing out that the culprit will have a lot of explaining to do before St. Peter. Describing her personal philosophy, Wigginton writes:

And of course, that was it... A gift was a gift. No question of its value or quality. Only gratitude at the giving. A cheater or a thief could only traffic in those material possessions, which were of little consequence anyway. What mattered, truly, was the record with which one approached the ultimate tribunal.<sup>92</sup>

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<sup>91</sup> Linda Garland Page and Eliot Wigginton, *Aunt Arie: A Foxfire Portrait* (Chapel Hill, NC: University of North Carolina Press, 1992), xii.

<sup>92</sup> Page and Wigginton, *Aunt Arie*, xiv-xv.

Arie gives freely, expecting nothing in return. Eliot Wigginton marvels at her ethos of gift and exchange, commenting upon its virtue. But he also remained conflicted over her status and his attraction to her in much the same way as Cohen in regard to Halcomb. To deal with his feelings, Wigginton wrote extensively about his personal beliefs about the changes in the region, an emotional outpouring of critique of what he saw as the detrimental capitalist consumer culture.

In the introduction to the first *Foxfire* book, Wigginton writes about his rationale for preserving folklore. He claims, “If the information is to be saved at all, for whatever reason, it must be saved now; and the logical researchers are the grandchildren, not university researchers from the outside.”<sup>93</sup> Wigginton started *Foxfire* as a way for youth in the region to succeed in an educational system he saw failing them. Wigginton notes in his introduction to *Foxfire* that, “the magazine had to sell, and that literally forced us to emphasize folklore rather than poetry... [to survive] on the market.”<sup>94</sup> These students “are going on to college knowing that they can be the forces for constructive change; knowing that they can *act* responsibly and effectively rather than being always *acted upon*.”<sup>95</sup> Wigginton credits this educational empowerment with ending classroom violence and unlocking students’ learning potential. After narrating the burning of his lectern upon arrival at the school, he indicates that, due to *Foxfire*’s success, he no longer has to deal with such unruliness. Wigginton reflects:

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<sup>93</sup> Wigginton, *The Foxfire Book*, 13.

<sup>94</sup> Wigginton, *The Foxfire Book*, 11.

<sup>95</sup> Wigginton, *The Foxfire Book*, 12 (emphasis in original).

The kid who scorched my lectern had been trying to tell me something. He and his classmates... were sending out distress signals... How many schools (mine included) have dealt with those students that still have fire and spirit, *not* channeling that fire in constructive, creative directions, but by pouring water on the very flames that could make them great?<sup>96</sup>

Wigginton, though deeply frustrated with mainstream consumer culture, also sought to lift students out of poverty and place them into the liberal educational system. Similarly, his concerns over Aunt Arie's economic situation – his notion that she had been swindled, for example – displays conflicting desires that emerge out of his ambivalence about modern life. This struggle is further detailed in the second *Foxfire* book.

In the introduction to the second book, *Foxfire 2*, Wigginton openly shares his personal perspective on the loss of the culture he devoted his life to preserving. He writes that among his students:

[H]alf of them move away permanently... They are giving this country away. Our tax assessors are all land developers from outside the area. Parents have no family left to sell the farms to, so they sell them off and watch 'second home' extravaganzas take their place. Kentucky Fried Chicken is proud to announce its arrival...<sup>97</sup>

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<sup>96</sup> Wigginton, *The Foxfire Book*, 14.

<sup>97</sup> Eliot Wigginton, *Foxfire 2: Ghost Stories, Spring Wild Plant Foods, Spinning And Weaving, Midwifing, Burial Customs, Corn Shuckin's, Wagon Making and More Affairs of Plain Living*. (Garden City, N.Y.: Anchor Press / Doubleday, 1973), 16.

By this time, Wigginton has assumed the position of “insider,” using the language of “outside” to describe developers and “our” to describe his relation to his neighbors. His complaint contrasts with his encouragement for all his students to go to college. He rationalizes, “The only way I can see to get our kids committed to our neighborhoods and our communities is to get them so involved in their surroundings that they become determined that the community’s destiny is in their hands, not in the hands of commercial rapists.”<sup>98</sup> Throughout the remainder of the *Foxfire 2* introduction, he narrates his sense of loss: “It’s a mad cycle,” “Soon we are a community of isolated islands,” “maybe we’ll find again the rich wisdom in that sense of shared responsibility and love that once existed.”<sup>99</sup> He concludes that *Foxfire* is his way of teaching empathy and community building in the hopes of a brighter future.

The emotions on display in these *Foxfire* introductions range from anger to rapture. Wigginton remains upset with the social and economic status of the rural world he inhabits. He believes in its value as a spiritual and emotional resource. He comes to love the landscape, and feels that things like KFC do not belong. His anger and frustrations drive him to work passionately. Like John Cohen’s career as a folk music collector and documentarian, Eliot Wigginton found a career in the wake of a spiritual encounter with a folk relic. Like Cohen, Wigginton reacted to the economic possibilities opened up by the encounter by simultaneously facilitating the mediation of the folk into a broader national culture, while remaining hesitant and questioning his role in rural

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<sup>98</sup> Wigginton, *Foxfire 2*, 16.

<sup>99</sup> Wigginton, *Foxfire 2*, 16-18.

people's lives. In writing about the encounter that drew him most passionately into this role – the meeting with Aunt Arie – Wigginton makes very clear his lifelong devotion to and love for her.

Aunt Arie (whose full name of Arie Carpenter is not mentioned in the original book) enraptured Eliot Wigginton. Meeting her shaped the course of the rest of his life. After decades of working on the *Foxfire* project, Wigginton, together with Linda Garland Page, edited and produced an entire volume dedicated to her, *Aunt Arie: A Foxfire Portrait* (1983), in which they reconstructed her entire life story from dozens of student interviews. Wigginton introduces the portrait by reflecting that in all his speaking engagements around the country, he's constantly asked about her; he remains in "wonderment" at the "mystery of the reception she received," a mystery he continues to "probe," likely for the rest of his life.<sup>100</sup> This book is an act of devotion that recognizes the enormity of the gift she gave freely of herself, allowing her life to enter into an economic exchange based on the role of Appalachia as a mythological place apart, a spiritual treasure and origin story for the nation.

Arie and Halcomb become gift. Lacking economic agency or full contemporary subject status as relics of the mythical past, they are embraced as sacred. They allow new movements of bodies and ideas. Pilgrimage routes to Appalachia allow those "grown weary of the plastic world"<sup>101</sup> to find spiritual renewal in craft and hog fat. With the purchase of *Foxfire* – filled with how-to instructions on home gardening, canning,

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<sup>100</sup> Page and Wigginton, *Aunt Arie: A Foxfire Portrait*, xi.

<sup>101</sup> Wigginton, *The Foxfire Book*, 13.

churning butter, basket weaving, or even building a log cabin – one might, like the schoolchildren, “gain an invaluable, unique knowledge about their own roots, heritage, and culture... [and about] pre-television, pre-automobile, pre-flight individuals who endured and survived the incredible task of total self-sufficiency...” According to Wigginton, “In pure business terms, you get a staggering return from a relatively small investment.”<sup>102</sup> Yet in this calculation, it is “we” who both invest and see a return, a self-interested relationship in which the Arie’s and Halcomb’s of the region produce something outside of contemporary time that allows their gifts of self to flow into the national value structure, the land a territory long ago claimed as a natural resource for the nation.

The moral justifications given by Wigginton and Cohen for their actions, which each man articulates seemingly unprovoked and self-consciously, reiterate that the folk provides an antidote to modernity, a claim indicative of the fact that they were compelled out of a sense of lack. As educated modern subjects, they easily anticipate accusations and try to ward them off with rationalizations, but these fail to hold up to logical scrutiny. They had already undergone a change that exceeds logic. They were propelled into the woods by the sense of loss inherent in modern life. Their work is characterized by mediating an exchange meant to fill a void created in modernity’s wake – to have both a meaningful past and future, while remaining ambivalent about the present. They encountered the Appalachian as relic – a sacred artifact that gives meaning to the modern by imagining it has roots.

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<sup>102</sup> Wigginton, *The Foxfire Book*, 13-14.

The relic is produced in the encounter, because suddenly value appears anew. The relics become the value, and move into a consumer network that enshrines them as sacred objects. Marx explains that value appears in the object both *ex post facto* and *ex ante facto*. An object that is not desired holds no value. Once it becomes desired, its pre-existing use-value is activated. Value must both preexist and propel into existence the force of the thing to move.<sup>103</sup> This double temporality – in which past and future collapse into valuing the object – is the condition of desire. As these stories and songs moved out into the public as values they entered into and connected with a circuit of electric flows. For example, you can now order them online. But more importantly, these movements of things constitute a material iteration of the network of value and desire that entangles life in this landscape and obscures its deep connection to the modern by imagining it only as the past.

Many wouldn't see these people as relics or spiritual treasures. I don't. The kids who lived around Roscoe Halcomb preferred rock to his old fashioned bluegrass. These figures aren't enrapturing everyone. Those who do see the relics as such are those who achieved modern success and embraced a liberal progressive politics. This fits into a long

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<sup>103</sup> Kojin Karatani explains that in Kant's transcendental critique, synthetic judgment can only occur by attending to the *ex-post-facto* and *ex-ante-facto* at the same time. We are compelled to act based on a presupposition that what we believe exists before us, but also imagine that our act is necessary to spawn into existence those very universal, ethical conditions. Marx saw a similar antinomy in value, which Karatani connects to Kant. Marx writes of value, "Hence commodities must be realized as values before they can be realized as use-values. On the other hand, they must stand the test as use-values before they can be realized as values" (quoted in Karatani). This connection between moral judgment and the value of things means that value – whether moral or monetary – needs to both pre-exist, and spawn into existence its self-propelling force, *Transcritique: On Kant and Marx* (Cambridge: The MIT Press, 2003), 116-118.

pattern of desire for Appalachia by cultured urbanites that persists. Having received the gifts of modernity, these spiritual pilgrims seek a kind of return. What moves them, literally, are forces that bear witness to things hidden or forgotten in the thrust of modern development. The seekers inevitably found what they were looking for, always in log cabins, and in this way they engage a pattern of seeking and finding a “way out” in the woods. This desire is built into the dream of progress that allows for it, because of the illusion of successive betterment over time. This necessitated the description of Aunt Arie and Roscoe Halcomb as outside of time – either via a time machine into the past, or as a representative of an avant-garde rural futurism. Their value is seen in the ways their being ruptures the notion of progress. Those disenchanted with modernity’s illusory nature, and who self-consciously sought out something outside of it, witness this rupture.

When Arie and Halcomb became known *as* folk artifacts, their translation into mass culture was mediated through folk celebrities (like Pete Seeger, Bob Dylan, or Jessica Tandy – the actress who played Aunt Arie in the *Foxfire* production). The enshrining of the original as sacred and outside of modern time meant that they remained unable to gain monetary compensation, whereas the pop culture celebrity, known to exist within modern time, can exchange art for capital.

### *Resistance*

When Cohen returned to Kentucky to make his documentary film, *The High Lonesome Sound*, his primary objective was to capture Halcomb’s evocative performance at its most pure, in its natural environment. And yet, during the entire five-week shoot,



Halcomb evaded Cohen, and refused to be filmed playing music after his first encounter with the camera. But on the final day, as Cohen and Agee packed up the camera and equipment in the trunk of their car and prepared to leave, Halcomb picked up his instrument and broke into song, and his family came to dance on the porch.<sup>104</sup> Cohen rushed to unpack the equipment to capture the scene, and the moment is featured in the conclusion of the film. Halcomb's withholding for the duration of the film shoot was never made clear to Cohen.

Roscoe Halcomb, like many artists and musicians, described his music as a gift, something given by God, which is not the same as his labor; he played for himself. He also pointed out that he enjoyed playing music when times were good, but when he struggled and couldn't find work he lost his passion to play.<sup>105</sup> In "The Miner's Ear," Morris notes, "The prospector and the capitalist seek the value that they imagine inheres in the earth and its secret treasure, whereas the miner seeks that for which his labor can be exchanged."<sup>106</sup> As his music became another possible revenue source, Halcomb sought to exchange his value on a market he was already positioned outside of, since his treasure was held as inhering in a nature outside of modern culture. As pre-modern relic, it was impossible for him to make real money off that which was received as gift.

When Halcomb refused to play for Cohen's camera, he withheld the gift, choosing when and how it would be revealed. He was aware of his value, and so exercised control over how and when he gave of himself. Similar to when he left the

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<sup>104</sup> Matthews.

<sup>105</sup> Matthews.

<sup>106</sup> Morris, "The Miner's Ear," 98.

stage in a violent coughing fit, he withheld of himself while repeatedly iterating struggles with his health and monetary income. In these ways, he resisted the full capture, the full embrace, of his person as a spiritual relic.

Aunt Arie also resisted the notion that she was a timeless spiritual treasure in a sacred place, through her storytelling. She mentioned, within the first *Foxfire* chapter devoted to her, that she lived up against “government land” and that agents kept pressuring her to sell her property. She brought this up while speaking of her desire to have money, and after mentioning a scary incident in which her cellar door froze and she went hungry for a week without access to her food. In this passage from *Foxfire*, she narrates her relationship to the neighboring government land, and money:

If I had plenty a'money, I'd put me a short sink right here so I wouldn't have t'trot outdoors ever'time t'pour th' water out; but I guess I got just about what I'll have when I'm took away from here. Look like th' porch out there's gonna have t'be fixed; an' they want me t'sell the place *so* bad. I've already been offered lots fer't an' I wouldn't take it. This land goes over 'cross that mountain an' plumb on down on th' other side, an' th' gover'ment [government land] comes up there, an' they want that. I say I don't want'a sell it, an' they just looked up at me s'funny. Said “What would I do with all the money?” You know, I don't care nothin' about money much. My feet's gettin' sorta cold!<sup>107</sup>

Within this passage she loops from imagining what home improvements she would make with money, to concluding that she will never have money, and doesn't care for it. She

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<sup>107</sup> Wigginton, *The Foxfire Book*, 27.

resists the buyout – an act that links her to holdouts during the displacements for Norris dam, and to the lone home that still stands in Swan Pond in the wake of the ash spill.<sup>108</sup>

Her resistance is a rare testimony to the will to remain in the face of an enormous force of change – the long pattern of land seizures by the US government that displaced communities to make way for development of power’s infrastructure. At the border of government control, her homestead can appear as a relic of the past, as “self-sufficient,” but Wigginton also notes her loneliness, her fears, and his sense she is taken advantage of. Even his own first appearance at her doorstep caused him some shame upon reflection. The story doesn’t neatly cohere.

These magical presences, the spellbinding power of these voices, bodies, and lives, appear within a cycle of gift exchange that is perpetually broken. These accounts can never be balanced. Real value cannot flow back to its source in this arrangement, because what fuels modernity – coal, nuclear power, *and* rural authenticity, all derive from a “nature” outside of the modern, the mountains and their ancient inhabitants pieces of an imagined past that came before. The society that places great value on technological progress and human advancement repeatedly produces these pilgrims. As they move into the landscape, pathways of desire and value are carved out that create a relationship between this landscape and the nation. They emerge together out of the desire for a meaningful origin. The powerful transformation, the alteration of lives witnessed in the

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<sup>108</sup> Resistance to the TVA/government buyout is also a kind of tradition in this region, one that attests to values that take priority over money. In such buyout stories, the agent of the exchange always wonders at the resistance of the poor, wondering how anyone could value the backward landscape over a large lump sum of cash. And yet, there they stand with checkbook in hand, desiring the same piece of land.

encounter between modern pilgrim and spiritual relic, is a reordering of the kind that the ash also enacts. It is not that the powerful ancient witches personally embody an individual human agency akin to a disastrous flood; it is that flood and relic are borne of the same epistemological arrangement. Out of modern ambivalence and conflicting desires for endless power, harmonious nature, and social improvement, the relic and the flood stand as limits. They are not controlled by the prevailing order, and as such alter it in moments of radical encounter.

#### 4. Abstractions

*“It’s just that the world becomes so vast, if there is more than one type of existence.”*<sup>109</sup>

##### *Entering the machine*

I emailed a man about a tour of the Steam Plant, and moments later received a reply from another person to whom my request had been forwarded. Within minutes, I attempted, via email, to set a time for the visit. This request went unanswered for days. Eventually, I called on the phone. The abruptness and seemingly harsh tone of the man on the phone gave me pause. This was not the first time my interactions with others seemed stunted or uncomfortable due to some combination of different ways of speaking across lines of regional dialect, gender, and class or professional status, and the slightly unusual nature of my inquiries. But my future Steam Plant tour guide soon enough fit me into a sensible category. After questioning the nature of my interest in the facility and my desire for a tour of its inner workings, he offered an assurance (to us both): “I give tours to school groups all the time.”

Indeed, shortly after I arrived, a stapled set of four inkjet printed pages of plain 8.5x11 paper offered this pedagogical familiarity with diagrams and graphic representations of the processes and machines I would encounter on the tour. The first page, filled with a sky blue background, titled “KINGSTON FOSSIL PLANT [line break] FROM COAL TO ELECTRICITY IN YOUR HOME,” shows one small

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<sup>109</sup> Latour, “Reflections on Etienne Souriau’s *Les Différents Modes D’existence*,” 313.

photograph of a locomotive in the upper left corner, leading to simplistic, two dimensional graphics that depict a flow of coal from conveyor belt, to coal bunker, pulverizer, boiler, steam turbine, burners, generators, transformers, utility lines, co-op facilities, and finally to Your Home in the form of power. Red arrows allow the eye to follow the flow chart. Coal ash is not charted, visualized, or mentioned at all. Despite the fact that as the tour unfolded, I would witness a vast landscape of waste holding cells and large multi-story electrostatic precipitators for capturing enormous amounts of coal ash from the smoke, the flow chart depicted only a positive materiality – that which flows meaningfully and usefully into the American home. The flow of power on this graphic leads not to industry, or to other cities, or to Oak Ridge, but to a single, simple one-story home with the kind of façade that indicates a humble middle-class domesticity. Only machines and materials that flow productively into this destination require explanation to students, like myself.

The next page in what I determine is a basic educational packet for such tours features a 2D engineering cross-section of a twin furnace boiler illustrated in cool blues and greens. After that, another page depicting a cross section of the boiler, only this one a much more realistic graphic, complete with real-looking fire shooting up the main chamber. It is hard to say “real” because the image is blown up to fit the page and is so pixilated it’s illegible except for the bright yellow-orange shock of fire running through the center against a backdrop of blacks and browns. The last page of the packet offers the least information. Here, the whiteness of the page meets up with the edges of a faint pastel gray-green box with a kind of double arm, in crude rendered 3D, which floats in

the center of the page. No text, nothing but the translucent computer graphic of a gray box flanked with light blue lines at the top, and containing inside it a kind of green bar, some yellow stuff, and a lavender rectangle. The image is free of context, which would only later be provided by my tour guide. I use the back of the packet to take notes as we begin.

I drove to the Plant on an overcast morning and pulled into a gravel driveway next to trailers with signage noting the EPA oversight of the environmental disaster cleanup still underway, and cautioning workers about the rules and regulations that apply to the job. A friendly, middle-aged white man, my tour guide, Tom, greets me.<sup>110</sup> I feel relief at the complete absence of the harsh tone I detected over the phone. Tom strikes me as one who probably doesn't like talking on the phone, though often does for his job. In fact, almost as soon as we get into his work truck, he's on his cell phone speaking in his punctuated tone, making decisions and dispelling only the most necessary of information to the caller on the other end. The information regards housing workers in the homes of former residents displaced by the ash flood, homes that TVA purchased some time after the spill. Tom calls the homes by unit number-names, stating which are empty and how many weeks workers can expect to reside in them. While the houses on Swan Pond were demolished to make way for a new public park, I learn that many other lakeside houses were bought and left standing. They now serve as dormitories for temporary workers at the plant. I have to ask about this. I will wait to ask about this.

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<sup>110</sup> Tom is a pseudonym.

We pull up to an aged, low-slung rectangular building, gray and utilitarian with rows of office windows, like the façade of a school or a prison or an admin office or any other functional government institution with a low budget and a prioritization of efficiency. I am told to bring along the hardhat laying in the back seat of the truck and the plastic safety glasses sitting inside. The previously described packet had been sitting on the dash, waiting for me, along with these items.

We enter the office building. We have to make a stop right away. Tom keeps coughing semi-uncontrollably. He's been coughing a cough in the truck all the way over that is not like the way you cough when getting over a cold and needing to clear away the excess phlegm in your throat. It's also not the cough of the smoker, all deep and disconcerting. It is a dry cough, the kind of steady sounding cough that seems like all the person needs is a drink of water, or something. This is my feeling. I don't think Tom has a cold. There are no sniffles, no clearing of the throat, no pale or compromised physical appearance. Tom, most likely, just has a lot of this coal dust that is everywhere around us in his airways. How could one not? Later, Tom will tell me, somewhere along the way in the tour, that the coal is ground up in the pulverizer "finer than flour." This black dust is on every surface once we get inside the plant. I am warned not to touch anything because everything is dirty, and hot. Because of his increasingly uncontrolled coughing and inability to lead a personal, one-on-one tour while in this state, Tom leaves me in an empty conference room while he goes to get a bottle of water. The walls of the room are lined with photos of the construction of the Steam Plant taken by the official TVA photographer. I've seen several of these official TVA photo collections at the National



Archives. Tom tells me to walk around the room and look at these while he's gone. I do, and see the ordered, chronological transformation of the landscape from a field with a river to a multi-acre machine of a simultaneous complexity and simplicity. Complex because of all this material, all these parts, all these nuts and bolts and screws and beams and pipes and metal and men; simple because, all this constructed to set fire to coal, to burn up matter and channel its life-force.

Before entering the giant rooms with giant machines, I am vetted by a man sitting at a desk in a small office. He notes my shoes are not regulation. I was told to wear closed-toe shoes that are sensible for a lot of walking, so I wore a pair of Nikes. This is allowed despite the disapproval of the man in the office. I am told to take a small packet of earplugs from a box affixed to the wall, filled with many other such packets, as we enter the generator room. 3M makes them, the logo indicates, and they are bright neon colors and extremely lightweight. I tear open the little clear plastic packet and put it into my pocket to be thrown away later. Two plastic blue dome shapes connected by a bright yellow thin plastic cord, I drape them around my neck and notice for the first time the little clip at the back of Tom's hardhat that is holding his pair. I will see these little bright accessories littering the floor here and there around the plant, outside in the gravel, and inside in dusty corners. They stand out against all the black, gray, and rust.

Signs around the plant remind us of hearing protection, command us to wear hardhat and safety glasses. Signs warn of the ammonia and asbestos safety precautions. "MAKE SAFETY A WAY OF LIFE," instructs a large hanging vinyl banner once we enter the room with the boilers. It's quite hot, and very loud. The dust makes my throat

tickle. Everywhere we are surrounded by towering metal structures, sooty and rusted in places, some with water gushing out like an industrial waterfall onto a concrete floor with grates over drainage holes. We walk around the vast warehouse of machines and wait for an elevator so broken down it never arrives, so we take the stairs. Down we descend into a hotter and louder level than before. Everything is metal, darker, and dirtier. A few workers, black and white, male and female, walk by us. One opens the hatch door on the side of the burner for me to look up inside at the whirling bright orange flame shooting up its inner chamber, as large as a water tower or a big elevator shaft, but for coal incineration. The fire is intense, but I put my head close to the little hole with a door to gaze up inside the body of the thing and take a good look at what is visible to the eye when coal dust ground finer than flour is blasted into a chamber of fire heated to around 1,000 degrees Fahrenheit. Hot air sweeps across my face as I gaze upon a rush of orange heat and currents of motion unlike anything I've ever seen. Imagine a fireplace the size of a grain silo, and you can look in through a peephole the size of a microwave door, and the flames rush around inside like the eye of a tornado. There is a vastness here that one cannot fully behold. I can't see anything completely, or uniformly. It's just a psychedelic blur of orange moving so fast the eye cannot steady. If I stared too long I imagine it would become disorienting, frightening almost. There is no body, no form, no shape or object inside the fire chamber. Everything inside is undergoing a transformation, turning from dead dinosaur remains into electricity and ash. At the threshold of the infernal machine that converts prehistoric sediment into power, I view a process that reveals almost nothing but light, color, and motion, like when you stare at the sun accidentally

and it all goes white-yellow-orange, or when you press your hands into your eyes until all you can see are light-colors swirling around in the abyss of temporary blindness.

The tour continues. We try to take the elevator back up. This time it opens. Slowly, it cranks and shifts into a vertical climb, and soon enough we are out on a higher level than before. We walk toward an open door of regular size that looks incredibly tiny given the scale of dark industrial space we traverse to reach it. The open door appears in the distance as a little rectangle of sunlight. As we approach the bright empty rectangle to step through to the outside, onto a large roof deck, we pass a worker sitting on a little plastic and metal chair smoking a cigarette. Sitting inside, blowing smoke out the door, he sort of covers the lit cigarette with his hand and moves it down to behind his thigh as he sees us approaching. Out on the roof deck, there is a blast of steam coming out of the wall in a horizontal gush. From here, I can see a cluster of large metal power transmission towers, each strung up with several power lines, twisted metal ropes that carry energy away from us and over the hilltops out into the horizon. This scene gives me a certain kind of unspeakable feeling. I am within something greater, bearing witness. We go on.

Before exiting the boiler, turbine, and generator portions of the facilities, we make a stop at the control room where workers use computers to control the process. The room is layered. Within a small area, buildups of new and outdated technologies overlap. With some still in use and others sitting idle and outdated, the distinctions between the historical eras that produced each seems at first discernible, but then blurry and indistinguishable. In the distance, I see a lever with a rod and handle that can be switched on or off between two positions. Next to it, a smaller little button that you can push up or

down on its obtuse plastic face. On top of all that, and forming an inner section of the space, a series of computer monitors face a worker clicking his mouse to allow more coal to enter, or to turn on or off some part of the machinery. Buttons and switches and monitors are everywhere on every surface. The image is not unfamiliar, to anyone who has either worked in such a space or seen certain movies. The control room filled wall to wall with buttons and switches is a type of common setting in the Western modern industrialist imaginary as the place from which generals or pilots or NASA workers make decisions. This is a built environment where people might think and feel that they control these things.

Low lockers with stickers from unions or the coal industry line the back wall of the room. The “Friends of Coal” sticker, with a blue font and simple black swoosh partially encircling the text, counts among the more commonly seen logos on the backs of the region’s cars and trucks. With those stickers I am reminded of who these people are inside this machine, here, in East Tennessee. These are not generals, or NASA scientists. These are the people I went to school with in this town, whose parents had jobs like this, who depend on the work for a basic kind of living. They have a good job. Coal *is* friendly to them. Friendship – an affective relationship of care and support, a necessity of social life – vitally bonds black matter and human bodies within this landscape. And here, in this control room, workers have the ability to control these machines, at least to the extent that they can switch on or off the flow of coal, turn on or off a particular burner or generator, monitor measurable aspects of the process, and alter little bits and parts of it in a day-to-day, scheduled and routinized kind of way to keep things smoothly flowing.

*Abstract desire*

I experience a break in the flow of the tour. Strolling back through the administrative building after touring the burners and generators, and before moving outside to the waste and toxin removal machines and the scrubber and their fields of ash, we pause in a long foyer above some stairs. I notice a row of zamioculcas, a type of plant that does very well in low light and low water conditions, flanking the stairwell. The presence of plant life provides a miniscule liveliness in contrast to an overwhelmingly mechanical and metallic affair. And above the leaves, faded but vibrant colors all along the wall form a large mural – a series of rectangular canvases of varying widths but uniform height, with a little separation in between each – with two additional canvases pushed closer together around the corner on an opposing wall facing a long corridor. Tom stops to tell me: “This is my favorite part of the plant,” gesturing toward the art adorning the pale yellow tiled walls. He encourages me to take pictures of the paintings, and to really stop and take them in. So I do.

The style of painting appears to combine socialist realism with a vaguely cubist kind of abstraction, to an effect that displays a sheer ideology of aspirational modernity. This painting, both in what it depicts and in its style, exemplifies the philosophy and epistemology of the Tennessee Valley Authority of the mid-twentieth century. It displays desires, a myriad and overlapping projection of future-longings. Its style, content, colors, and compositional choices, the characters included and those unseen, the social world it conveys, all appear to me at once very important, and art historically irrelevant. The

mural possesses and is possessed by the emotional force of particular future building dreams. Tom tries to share with me this emotional evocation, the pull of his “favorite part” of the plant. I can’t feel anything in the moment, but I take his word for it.

As I stand looking, TVA becomes this painting. I am within the machine infrastructure, gazing into its real and abstract self-representation – Tom’s favorite part of the whole place. I ask him what he likes about it. He mentions how it shows satellites out in orbit and rockets, “before we went to space,” and the x-ray. He tells me this painting is from the 1950s, “before” all these things were invented or happened. Tom basically suggests that the mural prophesizes American technological greatness, still yet to come. I ask about the artist, but he doesn’t know. There are no artist placards, no title, and no date.<sup>111</sup> Like other socialist murals, this seems to have been erected for the people, in this case, the plant workers, to visualize their role in something grander than the tasks of each shift and their hourly wage. The painter, another worker, plays his or her role in anonymity, working in service of a social bond and a larger meaning, as depicted.

I will discuss from left to right the *mélange* of colors and bodies and technologies of the mural.<sup>112</sup> In the first narrow vertical panel, a man with a cubist body and a realist face gazes up, hardhat headlight beam shining upward in a bright yellow-white shaft,

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<sup>111</sup> The Kingston Steam Plant was completed in 1955. I assume the mural was painted and hung around the time of the opening of the plant. The style would suggest this time period, and the fact that it seems not much has changed in the office infrastructure since it opened. Of course, it may be possible to find the artist info in the archives, but I visited the plant after the archives, and in any case, my point is that these facts remain unknown within the plant, to the workers who pass by everyday. To see it one must go here. Once here, the artist goes unnamed.

<sup>112</sup> See Figures 1 through 5.

pick ax slung over his shoulder, with buildings or machines abstracted into the background. He looks like a coal miner facing up out of the mine, his light shining upward out of the dark pit. To the right, a long horizontal canvas is filled with a scene that seems to repeat, but not exactly. All along it, men and smokestacks and pipes flow into one another, the borders of human bodies and technologies blurred in the way, in *Les Femmes d'Alger*, the bodies of the prostitutes mesh into the background of the brothel.<sup>113</sup> Only in the TVA mural, some of the bodies become even more blurred into the oblivion of background, their outlines more obscured and transparent. A thick red band runs horizontally across the whole canvas. Below it, a row of masculine bodies, all in hardhats and with tool belts, touch a curving pipe that connects them. The bodies, whose outlines are discernible in form, are shaded with multicolored, kaleidoscopic fragments in pastels and large swaths of translucent blue-gray paint that draw each body into the larger mixture of mechanical parts. Above the red line, a row of uniform smokestacks with a curving, geometric smoke rising up form clean, connected, repeating arches. It is here, in the upper two-thirds of the painting with the blue and aqua and gray and periwinkle smokestacks with a softly undulating curve flowing beneath them, that one worker looms, larger than all the others. He holds the same pipe as his brethren below in bright colored hands that stand out, but his body almost completely matches the colors of the background, rendering his self as mostly a downcast face, eyeless under the dark shade cast by his hardhat, with tight lips. His blue body weaves through the smokestacks, two

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<sup>113</sup> Pablo Picasso, 1907. This painting famously refracted human bodies into angles and shapes with colors that blend into the surrounding environment.

of which cut through him vertically. There is also a circle enclosed in a triangle enclosed in another, larger circle that says “TVA” three times in various colors, once for each side of the triangle, in the lower right hand corner.

After this, another slender canvas features a single worker who studies blueprints he holds that say TVA, with a set of metal power transmission towers in the background. Taken together, this first portion of the mural represents the work of the power plant itself. It says much about the role of the worker, the human body, and the technologies of power production that is not immediately apparent when reading TVA archival documents, speeches by past directors, or planning notes from its early days. To the extent that these men’s bodies blur into the mechanisms they operate, their uniformity of appearance renders them anonymous in the way of the soldier. The mechanical workers in the long panel all wear hardhats that obscure their eyes, and their bodies are painted to look perfectly uniform. Like soldiers, such workers are stripped of individuality to serve the goals of the larger mechanism within which they labor. They exist in an arrangement of life and work where the human body’s ability to exist depends on its enmeshing within the technologies and machines it enables, and in turn, relies upon.

The next set of three canvasses expands far beyond that which connects immediately to the workplace of the Kingston Steam Plant. It begins, again, with a narrow canvas. Only this one, if taken alone, could pass for an amateur surrealist work. An angularly receding flat white plane with a grid of small black dots is shown to the left, on top of which a thin vertical red-orange rectangle is overlaid, with a few even smaller black rectangles here and there atop the orange one. All of this geometry perspective-



points toward a bright red-orange mushroom cloud of what one can only imagine is the atom bomb, given this context and the historical memory this firebomb-cloud shape evokes. Toward the lower right, a small (in comparison to the bomb and grid panel) worker sticks a long thin line/rod into one of the black dots on the grid. To the right of this scene, another narrow canvas is filled top to bottom with the outline of a human form, whose heart, liver, right thigh muscles, and left hip and leg bones are displayed as in a medical chart of the body. The body is cut across with colors and shapes that overlap the outline, including a black and white geometric pattern and a peach curving shape that connects to the mushroom cloud on one side, and into the shapes on the longer canvas flowing away to the right.

There is a lot going on in next the canvas to the right. Wavy bright red shapes that look like dripping blood, a bomb, an animal carcass (presumably cow or pig), scientists with clean haircuts pouring bright red liquids into test tubes, small and very large plant leaves, a farmer in overalls and a floppy hat, beakers, wild “electric” lines zigzagging away, a telescope, another small power transmission tower, some small smokestacks in the deep background, charts with overlapping radio waves – all of this is blended through abstract color painting techniques. The result is at once harshly angular and organic, hot and literally dripping with blood while cool and mechanical and controlled, clean yet chaotic, organized and messy, contained but with hidden and evasive parts. The mural wants to show how everything is connected and the result is a confined confusion at once clearly visible with parts layered into invisibility.

I move away from this long wall to look at the remaining panels of the mural around the corner and facing the other direction.<sup>114</sup> These side-by-side pieces of the mural are smaller by comparison, comprising an approximately five foot square. Set apart, they speak to the cosmological reach of the TVA vision. Again, I see a few workers in the low foreground, all wearing hardhats, a tiny row of smokestacks buried low in the corner and deep in the background, and this time the power transmission tower is huge. It takes up most of the vertical space on the right half of the double-canvas. Behind the big power tower are the earth, planets, rockets, an airplane, and a satellite in orbit. All the things Tom indicated are remarkable about this painting, completed in the 1950s, as he told me.

Some things are clear in these paintings, as Tom pointed out: the atom bomb, rockets, and satellites. These are the things he noted as impressive about the vision of the piece. These are the identifiable objects, things that even in simple two-dimensional paint reference real-world counterparts. But these objects are linked to a meat carcass, a coal miner, TVA, and a sort-of-surreal, angular switchboard via abstractions.

The abstract parts allow these objects to appear in connection in an evocative way, as a dream. Otherwise, these objects would look like collage, and this painting does not look like collage. Collage, a mixture of disparate objects, often appears directly political because you can see the cut, a choice. The objects touch together in considered ways for juxtaposition. To the extent that this painting depicts a realistic view of the world, it relies on the use of abstract technique to weave together these object elements.

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<sup>114</sup> All canvases taken together probably measure 4-5 feet high by about 30+ feet long. I didn't take or receive any official measure. This is a guess to give a sense of scale.

The abstract parts allow the objects to appear “out of the blue” and held together with by a vague substance that depicts no identifiable things. The blue-gray waving lines, the cloud of abstract paint, serves as the condition out of which this story, or dream of connection, is able to appear. The cohesion of the dream relies on a shared set of desires that allow my tour guide to *feel*.

The affective force that enabled the creation of this painting, and the feeling it evokes in the viewer, are forces of the unrepresentable: the abstraction of desire. What the painting cannot show (because it does not exist) is a pure planned logic of efficient order among objects. Instead, the soft undulating blues and grays flow and connect the pastel shades of a future-oriented dreamscape. In imagining a reordering of matter that sends rockets to space and creates flows of energy and weapons, the multicolor swaths of the unknowns connect and transcend the singularity of bodies and machines and test tubes. This flow through bodies and into the swirling wavy space that is of a different order than objective materiality is an abstraction that presents two key features of this art. First, the abstract allows for a visualization of how it all connects, those things that get bracketed and separately studied. Second, it shades the kaleidoscopic space of dreams and desires. Longings and hopes swirl through the scene in the form of these connections. This way of making sense via the visualization of connectivity allows the worker passing by day to day to imagine his body bound to the dreams of a society, a world in motion, held together by other men and their technologies.

This projection of a life is not a vision of control free of remainders. What of the wild zigzagging lines? The dripping blood red element? The way only portions of the

inside of the human body are visible at once, or the abstract bits of color and shape that signify nothing in particular, but exist and hold this thing together nonetheless? Those abstract parts, just colors and shapes and portions of curves and lines, trace the limits of the sensible and the representable.

Brian Massumi writes about vision, in particular, the “total field of vision,” as emergent from abstraction. He analyzes “Ganzfeld” experiments where test subjects were exposed to a full visual field of white light to isolate the basic conditions of vision. In these studies, subjects described vague, fog-like abstractions of a presence that is not an object, but not nothing, either. Massumi writes, “Vision at its most simple and concrete – white light on retina – is a complex presentation of its own abstraction. The closer you get to the objective, physical, and physiological bases of vision, the more vision abstracts.”<sup>115</sup> Thus, Massumi argues that the tests inadvertently reveal to us that vision is a kind of limit, or limit-field. As in mathematics, a limit is not a thing, but something that the curve approaches yet never reaches. The limit governs movement. “It is only by reference to the limit that what approaches it has a function: the limit is what gives the approach its effectivity, its reality. The limit is not unreal. It is virtual. It is reality-giving.”<sup>116</sup> The field of vision as limit, as virtual, means it is a non-object that grants objects their form and movement, and out of which sensible patterns of connection emerge. Attempting to pin down an objective condition of vision, researchers conducting

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<sup>115</sup> The Ganzfeld experiments Massumi describes were considered failures by the original researchers, because they yielded no concrete evidence, only the presence of abstraction. Massumi revisits these experiments into the physiological basis of vision to rethink this result and embrace the abstraction. *Parables for the Virtual*, 147.

<sup>116</sup> Massumi, *Parables*, 147.

these experiments found instead layers of abstraction, nothing empirically representable.

In the painting, it is the abstract portion that organizes what can sensibly appear.

This painting is about the scope, ideology, aspirations, and cosmological reach of the TVA mission in the mid-twentieth century. It is not an art historically notable work, so to see it, I had to enter into this machine with its heat and dust, and stand before it under fluorescent office lighting, and witness its emotive force via a white-haired tour guide. Dim, fading colors, under dust and unattractive lighting, remind me of the age of the thing. The light will continue to decay the colors, to break apart the molecules of paint that hold this vision together. In the field of vision of beholding this painting, vision via electrical light draws the movement of Tom, and then myself toward it. We face the painting. An affect lingers for my tour guide, and apparently for me, as well. I return to the digital images I took of this painting and look again, this time via the virtual illumination of my computer at home. I'm looking for something. Vision and the virtual move me.

What I find in this painting is that the scene evokes feelings because of the abstraction, because abstraction is one form the limit takes. The virtuality of abstraction, its present absence, means that it allows things, affects, emotions, and objects to approach it, but never fully arrive in the empirical sense. In the vision experiments described by Massumi, subjects were asked, while exposed to the field of white light, to describe what they could see. Researchers asked them if they saw basic object elements, such as curve, angle, line, etc. The subjects sometimes saw the beginning of a shape, of an edge. But

most described a cloud or a fog. One saw “levels of nothingness.”<sup>117</sup> They did not see objects, but abstractions. The vague translucence of bluish and greenish and gray connective paint in the TVA painting speaks volumes, wordlessly, about the inability to capture and represent the ways this all fits together. The absence of objects in the visual field is chaos; the absence of objects in the swaths of abstract paint is also chaos – a random “coming into and out of existence” that “excludes any given determinate thing, being a superposition of states that cannot phenomenally coexist.”<sup>118</sup> While with this passage, Brian Massumi describes the abstract, chaotic nature of vision, this description precisely fits the abstractions within the painting. It is in the abstract parts that the butcher and the atom bomb are held together, inches apart, in a kind of virtual harmony. Things connect via these abstract pieces, the “superposition” where object-states bind together. Out of chaos, a visual order. The abstract is a form of the limit; the limit is abstract. The limit is virtual, not a thing, object, or point. It is a rule that governs and thus organizes the movement. While in the total field of vision there are abstract “somethings” there is also a persistence of nothingness. The void is important. It’s the limit from which these abstractions emerge, just as it drives the desires that compel this technological infrastructure into perpetual production.

There is much excluded from this image of life under the rule of the Authority, just as there is much excluded or overlooked in the buildup of this system of power.

Those remainders haunt the painting, the TVA, and the region. They emerge at

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<sup>117</sup> Massumi, *Parables*, 146.

<sup>118</sup> Massumi, *Parables*, 146-7.

inopportune times, reminding us of the fragility of this world making scene. Out of the abstract connections among satellites, workers, bombs, and meat, material remainders of this vision-scape accumulate.

### *Still Moving*

Next on the tour are the multi-story machines that deal with the waste materials of the coal burning process – namely the coal ash and sulfur dioxide. First, we enter the base of the electrostatic precipitator, which is basically a big metal chamber, boxy and several stories tall, filled with magnetized metal sheets hanging vertically from the top through which the coal smoke passes before making its way to the atmosphere. These magnetized sheets capture some of the fly ash (not all) because it is filled with heavy metals. The magnetized sheets are struck to release the ash, which falls down into troughs, is mixed with river water, and then piped out to the holding ponds. I am not told on the tour, but know from archival research, that this electrostatic precipitator and the tallest two smokestacks were built in Kingston early in its operation, to reduce the ash raining down on the town. This, for many decades, was the primary way TVA handled coal ash at Kingston, and is the local mechanism through which the giant holding cells were filled.

We exit the base of this room, and walk across the gravel outdoors toward our final mechanical destination and the most recent building added to the Plant, the scrubber. Out on the gravel, Tom asks if I'd like to have my picture taken with it. I've been free to snap pictures with my iPhone the entire time on the tour, so I take Tom up on the offer to pose with the big scrubber, pumper of plumes of steam into the air in the

center of town.<sup>119</sup> He takes a few, helpfully trying to capture both me, and the scale of the scrubber with its big fluffy emission chugging up into the sky. We then enter the scrubber, into another control room base of operations with a worker at a computer amidst a series of monitors. Tom asks him if he has the video animation of how the scrubber works, which he does, and plays for me. I learn from the animated video that the scrubber is filled with 20 feet of water at the base, which contains lime and calcium to absorb the sulfur dioxide. The water is from the river, and fountains of it spray vertically in high streams. The sulfur dioxide bonds to the calcium and falls to the base, allowing the steam to leave the smokestack with less toxic emissions. A new material, created out of the combination of calcium and sulfur dioxide, is gypsum.

For the final leg of the tour, we return to Tom's truck and drive around the acreage of waste storage ponds that sprawl out across the landscape surrounding the plant. First, we encounter the new gypsum pond.<sup>120</sup> Tom tells me that once the construction industry picks back up they can sell more of the gypsum for wallboard. We pass by a silo of gypsum out in an open field sifting a flowing stream of the yellowish dust down a conveyor belt and into a growing sandy pile. Beyond this, the full pond comes into view. It is a stadium-sized pit, perhaps as large as a football field or even a few of them. Tom informs me this is new (as is the scrubber, which began operation in 2010), and that it is lined with felt and plastic, with a layer of sand and clay on top of that. The base also contains drainage pumps so the rainwater that collects can be pumped

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<sup>119</sup> See Figure 6.

<sup>120</sup> See Figure 7.



out of the pond. There is an adjacent pond full of this pumped-out water. I ask what happens to that water, and Tom answers that it's returned to the river. He includes the assurance that the water is tested, sampled, and closely monitored. He adds that he wishes they could put some lawn chairs and umbrellas out here (along the dikes of the drainage pond) and make it a nice place to sit. As we drive around the gypsum pond, still relatively empty and with another cell under construction, Tom shares that he and his wife walk the perimeter of the holding pond at night, to check the levies for any structural problems like a tree taking root, or some earth giving way after a rainstorm. He seems to enjoy these peaceful outdoor strolls along the ridges of earth, piled up into an angular flat-topped hill.

And with our drive around the pond, including a pit stop for Tom to casually chat for a stretch of time with a worker-friend he spots hanging around outside, the tour nears conclusion. I decide to ask my question about the housing of workers in former family residences. Why, I ask, would TVA buy out and displace these people from lakefront homes on the presumed basis that the area may be either unsafe or polluted, but then find it acceptable to move workers and their families into those very houses? Tom is not the person who made these decisions, and lets me know he's not the best person to ask. Yet his answer offers the obvious logic behind the decision. The previous homeowners were taking part in a lawsuit against TVA. As part of the buyout deals, the dollar amounts of which each homeowner agreed never to disclose, the residents also agreed to drop out of the lawsuit, take their money, and move on. No risk of future claims, no new residents to move in and mount new claims, just laborers who work inside the plant anyway and need a convenient place to stay in proximity to the workplace. Lakefront communities of

leisure give way to protective communities of bodies bound to the productivity of coal. This shift is due to the flood – unanticipated, irreducible, and optimized by managers and bureaucrats according to a particular, limited idea of beneficence. This is how a chaotic upending of order alternately renews the organizing logic of productivity, and allows us to see the world-making force of that which lacks rationality and is cast aside. The return of this irrational force punctures the logic of mechanical and technological production in an ordered system, reshapes the ground of life, and displays the immanent potential of a landscape in motion.

*What's the matter?*

Matter presents itself as a problem, again and again. First, the bombs of WWI need to be reformed into a fertilizer program for farmers. Later, the ash and gypsum need to be reformed into consumer products if at all possible. The problem with matter, in power production, becomes the excesses it produces. Once a project of future planning, war winning, concludes, what then to make of the rubbish left in its wake? Matter surfaces, again and again, as a problem.

In the 1970s, coal wastes and pollutants – sludge, ash, runoff from the coal piles, waste heat, various chemicals and heavy metals – emerged as the central problems for power management at TVA, and more broadly throughout the electric utility industry. Work shifted toward the scientific study, management, and planning for these wastes and the physical changes they seemed to suddenly demand. Professional men leverage science and law to maintain the prevailing order, but the waste never stops building up.

At the Kingston Steam Plant, I stand amongst the new technological additions to the landscape-machine, and the remains. These built layers embody the acceleration of desire for energy as well as the desire to reconcile energy consumption with an environmental ethic. The original furnaces still burn coal, the compressed organic remains of a pre-human time, but the original smokestacks are now relics of a past overcome with new emissions technology. The coal still burns, but the nine low smoke stacks from the 1950s all slowly decay unused.

In the archives I discover an incident from May 6 and 7, 1958. The “smoke” from the original stacks destroyed plants in the surrounding subdivisions. Flowers, trees, beets, greens, all “rendered inedible,” “burned.”<sup>121</sup> A doctor received many calls concerning inhalation of ash and fumes. In neighboring Oak Ridge, from April 18 to 21, 1958, people could smell and taste the fumes and see a plume coming over the hills. This pollution caused by burning coal was visible and tangible in the early days of the plant. People could see, smell, taste, and touch the smoke and its effects. A ruined garden of inedible vegetables manifests a truth of harm. Two very tall smoke stacks were built soon after.

The Kingston scrubber began operation in 2010, but the industry discussed the technology of limestone scrubbing as early as the 1970s. The 1970s began an era of EPA regulation and oversight of the industry, to which the industry responded by sponsoring scientific studies, compiling research data on waste and emissions, and sharing this

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<sup>121</sup> G. O. Wessenauer, Manager of Power, to O. M. Derryberry, Director of Health, Tennessee Valley Authority, May 22, 1958, Office of Power Manager Files (OPM), RG 142, NARA, Atlanta, GA.

information amongst the power utilities throughout the U.S. Talk of the “energy situation,” fuel shortages, sludge waste, sulfur dioxide emissions, in short, the “energy-environmental issue,” emerged as the core focus of TVA’s power manager, as reflected in a review of his files in the TVA archives.<sup>122</sup> These files contain a lengthy request from the president of the Edison Electric Institute, based in New York, to participate in an industry-wide effort to use sponsored scientific research, legal aid, and consulting to get “out in front” of proposed new EPA regulations, the Resource Conservation and Recovery Act and the Toxic Substance Control Act of 1976. As the memo notes, these two proposed regulations “will have serious adverse effects on the use and disposal of solid waste generated by electric utilities.”<sup>123</sup> Under these acts, the electric utilities feared, coal ash might be declared a hazardous waste. The “strategy” therefore, was to “seize the initiative,” “utilize the technical resources of our own industry,” in order to, “persuade the EPA that various waste streams produced in the industry are not hazardous and by this means seek to avoid the possibility of costly and cumbersome regulations for handling and treating hazardous wastes.” The institute invited financial contributions to help form “a highly professional, well-funded ad hoc group” to “respond affirmatively and successfully to the many challenges of these laws.”<sup>124</sup>

Before this 1978 industry-wide alarm over looming regulation, several other studies were relayed about the industry. On August 21, 1975, a TVA Power Research

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<sup>122</sup> Policy Letter No. 76-1, TVA, August 6, 1976. Subject: Federal Procurement Policy Concerning Energy Conservation, OPM, RG 142, NARA, Atlanta.

<sup>123</sup> William McCollam Jr., President, Edison Electric Institute, to Chief Executive of Member Company, May 19, 1978, OPM, RG 142, NARA, Atlanta.

<sup>124</sup> McCollam, May 19, 1978.

Staff member, James L. Crowe, sent a detailed memo to Mr. Kurt Yeager at the Electric Power Research Institute (EPRI), in Palo Alto, CA. In the memo he listed “projects that merit consideration for funding as part of the EPRI sludge disposal program.”<sup>125</sup> These “tasks” are listed in order of importance, according to the power research staff. They include status notes, such as, “There is a growing concern of the effect sludge ash ponds will have on groundwater, especially from trace elements and other toxic species contaminants.” However, “The problem with field monitoring is that, in many cases, the soil is so impervious that many years will be required to detect any groundwater contamination.” The following listed “task” is to establish leachability guidelines, however it is noted that given the long duration of time needed for monitoring, there is “an insufficient data base... to complete this task.” The section concludes, “At present, it is difficult for a utility to define what material should be traced as a potential environmental problem, or even what method of control should be employed to prevent such contamination.”<sup>126</sup>

A few years later, at TVA, the leaching of ash pond waste was studied in a field research project at the Kingston Steam Plant. Eight sampling sites were chosen around the coal pile (the large open air pile of coal reserves waiting to be burned), and in the various ash holding ponds. The presence of several heavy metals was noted. Prior to this

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<sup>125</sup> James L. Crowe, Power Research Staff, TVA, to Kurt Yeager, Electric Power Research Institute (EPRI), Palo Alto, CA, August 21, 1975, OPM, RG 142, NARA, Atlanta.

<sup>126</sup> Crowe, August 21, 1975.

study, “most ash leachate studies [had] been laboratory investigations.”<sup>127</sup> In those lab studies, ash was mixed with water to determine the rate of leaching of metals into the water from the ash. As a comparison, when field studies were conducted outdoors at the ash pond in Kingston, “The concentrations of metals found in the ground water beneath the ash pond were much higher than those observed in batch mixing studies performed in the laboratory, and pH values in the ground water were observed to be lower than those found in laboratory studies.” Also, “Anaerobic conditions were observed to exist in the ash pond leachate,” whereas the laboratory studies “reported in the literature” were carried out under “aerobic conditions.” What was found in the field was hardly more useful than what was found in the lab, however. The discussion of results points out that, “The concentration of iron, aluminum, nickel, lead, zinc, copper, chromium, and pH in the subsoil of samples varied with depth and location...” Trends were hard to discern. And “Mass loads of pollutants entering the ash pond are high, but there appears to be negligible effects on the ash pond effluent,” a characteristic attributed to “(1) neutralization, (2), dilution, and (3) adsorption.”<sup>128</sup> It is perhaps this final sentence, as well as the general uncertainty surrounding these studies, that allowed TVA and the energy industry to more or less avoid most of the feared regulation. Coal ash is still not considered a hazardous or toxic substance. The Kingston pond remained unlined; ash was stacked higher.

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<sup>127</sup> Jack D. Milligan, Doye B. Cox, and Richard J. Ruane, TVA, Chattanooga, TN, “Characterization of Coal Pile Drainage and Ash Pond Leachate,” OPM, RG 142, NARA, Atlanta.

<sup>128</sup> Milligan et al. “Characterization of Leachate.”

Scientific study failed to present a meaningful story of risk or harm at the level of the specific, isolable reaction. The pond, changing and heterogeneous, demanding long durations of time to understand its workings, did not lend itself to easy conclusions. The potential effects of ash sludge remained unknown. But James L. Crowe of the Power Research Staff at TVA understood that the nature of isolated scientific study and methodology, with its charts and separated and discernible features, did not capture this problem at all. At the request of one Mr. R. F. Skach, at Burns & McDonnell in Miami, Florida, Crowe sent an abstract of a paper he wished to present at their meeting. In the abstract, sent on April 19, 1974, Crowe writes, “The major problems of sludge disposal are the huge tonnages of structurally unstable material and the need to commit large land areas to nonproductive use.” For an example, he notes that a single plant can produce as much as “1.23 million tons per year.” “In summary,” he writes, “the problems encountered with sludge disposal are so vast that byproduct disposal looms as a major obstacle in the future of sulfur oxide emission control.”<sup>129</sup> This abstract begins a paper from 1974 on the topic of, specifically, the increased amounts of coal ash waste produced from the scrubbing process.

On my Steam Plant tour, I saw firsthand the new ponds necessary to house the new scrubber waste. I saw the old pond being topped with its new “flexible membrane liner (FML),” to be covered in clay and then grass. I saw that the machine was again in a process of shift and change, from the tall stacks to the scrubber, entailing the need to

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<sup>129</sup> James L. Crowe, Power Research Staff, TVA, to R. F. Skach, Burns & McDonnell, Miami FL, “Abstract: Sludge Disposal from Lime/Limestone Scrubbing Processes” by James L. Crowe, April 19, 1974, OPM, RG 142, NARA, Atlanta.

house more detritus in the land. Scrubber technology became a topic of serious consideration in the 1970s. It was not instituted at Kingston until 2010, after the spill. The breaks and gaps of how and why these changes happened when they did emerge out of the layered struggles for knowledge and its meaning spun out of the intersections of government, industry, and the energy/environmental desires of the national population.

Another government memo, this one from December 12, 1974, highlights the struggle over fact, knowledge, truth, and meaning. C. Jack Powell of the TVA Power Research Staff sent a highly critical letter to Mr. John O. Rich of the Salt River Project in Phoenix, AZ. The letter concerns a study carried out by Battelle for the EPRI on tall stacks, such as the very tall stacks implemented at Kingston and used for decades to put the pollution higher into the atmosphere for the improvement of ground-level ambient air quality and everyday aesthetics in communities surrounding the plant. The letter expresses anger that Battelle “excessively stressed the limitations of the tall stack.”<sup>130</sup> Of offense are the “authors’ opinions, which definitely have no place in a technical report.” Such “opinion” statements are that the tall stacks constitute a ““minimal attack on a global problem,”” and that they offer a ““false sense of security.”” Powell, of TVA, defends the tall stacks as great mechanisms for “controlling the SO<sub>2</sub> concentrations in the vicinity of large coal-fired power plants.” He also notes that the major advantages of the tall stacks are their “low cost,” “reliability in dispersing power plant emissions,” and their

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<sup>130</sup> C. Jack Powell, Power Research Staff, TVA, Chattanooga, TN, to John O. Rich, Salt River Project, Re: Battelle Report on Scrubbing Technology for EPRI, Palo Alto, CA, December 12, 1974, OPM, RG 142, NARA, Atlanta.



“lack of interference with normal power plant operations.”<sup>131</sup> It is notable that prior to Powell’s defensive response, he was sent the report in draft form, from the EPRI, as they “hoped [to] avoid anything which might be inadvertently embarrassing to the utilities.”<sup>132</sup>

I cannot know the conversations or feelings that transpired with the passing around of these documents. I can only look at their statements, and compare them to the knowledge on the ground at the Kingston Steam Plant. The tall stacks remained in operation for the three decades following these reports. The scrubber is now in operation. One memo from March 23, 1978, passed within TVA from the Acting Director of Environmental Planning to the Director of Power Resource Planning, discusses a proposal to construct a scrubber at Widows Creek Unit 8 (a TVA power plant). The memo notes that studies on sludge disposal need to be completed since there will be a need for sludge pond expansion with the scrubber. “Considering the likelihood of other scrubbers on the TVA system in the near future, the sludge management problem is becoming ever more important.”<sup>133</sup> The link between the need for major expansion of sludge ponds and the scrubber technology is clear. The noted “vast” nature of the problem of waste management is also clear.

Looming all around the margins of these papers are the desires that propelled them into existence. The fact that industry responds conservatively to proposed EPA regulations is not surprising. But real feelings – anger, fear, and anxiety – underscore the

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<sup>131</sup> Powell to Rich, December 12, 1974 (underline in original).

<sup>132</sup> EPRI, Palo Alto, CA, to C. Jack Powell, TVA, Chattanooga, TN, Oct. 16, 1974, OPM, RG 142, NARA, Atlanta.

<sup>133</sup> Harry G. Moore, to J. P. Darling, TVA, March 23, 1978, OPM, RG 142, NARA, Atlanta.

production of these professionally worded managerial documents. These men and their colleagues presume a level of control over the situation. But what they faced in the 1970s, mere decades from when their plans went live, is a return of the force that exceeds their control. The force of the sludge is a nightmare counterpart to modernization dreams. It makes demands: thousands of acres of land committed to “nonproductive” use, unable to serve as the most basic unit of capital accumulation, real estate. Land as property as money generator. Instead, the sludge guides the actions, as a limit.

Out of the labs of scientists and the desks of managers, these papers moved out into the world, dispersed through the mail, and returned with notes of concern. In these responses, an industry grapples with the ways an emergent environmental awareness pressed upon a national government, and the ways that government pressed upon industry these desires. But there is a conflict at the heart of the desires, as expressed in the reactionary nature of the industry to protect its status quo, its profits, its steady operations, and its ongoing growth. TVA, as well as the electric power industry, leveraged scientific authority and professionalism to meet the challenge posed by the threat of regulation. Regulation threatens because it aims to correct only certain aspects of the problem, creating new problems for the industry. Thus the reactionary stances did not surprise, when I encountered them. Instead, I saw these men working to protect interest at the local level: jobs, funds, and a machine that moves in a productive manner. Besides, these workers seem more or less aware that the problem coal ash presents is nearly insurmountable, that it must be accepted as a transactional cost of this exchange.

In this archival network of past exchanges, I trace out the tendrils of the energy economy in its much broader landscape of desire: in the arena of American everyday life. Like in the large-scale mural at the Kingston plant, that which references objects appears here and there, while in the background a flow of abstraction links these imagined objects and people and guides the movement. The abstraction is a physical presence, both in the painting, and in the power industry network. The connections are not always clear, but just because they are tenuous, does not mean they are unreal. They are virtual. You cannot always see them, but you can sense their presence. You might glimpse them in print or paint, but their tangibility falls away. Where are these men today? Who knows? Some are undoubtedly dead. Others may live, but not remember the hows and whys of their memos and filed reports. The workers represented in the painting are those who wield wrenches and stand visible in the landscape of these machines, or who conduct scientific studies in fields or labs. These laborers work in tangible ways. The machines and technologies in the painting stand tall. The workers in the management offices move invisibly in the narrative of the painting. In the management narrative, the broad connections among it all are rarely pointed out. But when they are, they stand out as moments with feeling. The “problems encountered with sludge disposal are *so vast...*”

Against all the rational logic used to reason out why tall stacks, why scrubbers, why regulations, why no regulations, and against all the cost benefit analyses, the problem persists. I return to the flow chart Tom handed me when I began the Steam Plant tour: coal, machines, fire, power plant infrastructure, electricity in your home.

I can retrace some of the desires that loom here, in the Steam plant, in the painting, and in the archive. I see some of the transactions and the bracketing that put materials into an economic logic of profit and accumulation, and how in the 1970s these desires began to be brought into a conversation with the desires for “environmental quality.” Industry began to face limits, and it did so with fear. Out of the fear of a limit, it conducted scientific research to reason ways out of facing the limit, even if temporarily.

But the limit still controls the movement, indifferent to being ignored. The resources are finite. The land for the waste is limited and the waste problem is incomprehensibly vast. The negative effects may be scientifically unquantifiable, but I watched a former Swan Pond resident laugh viciously as she told me what TVA told her: that coal ash is so safe you could eat it.<sup>134</sup>

Everywhere in the archive, and in my tour at the Steam Plant, looms the forgetting that a false subject/object dualism of the world propels this arrangement, allows the worker to sit in the chair, press buttons, go home, shower, eat with his or her family, return, routinize. This forgetting enables Steam Plant electricians to feel surprise at the flood, like all other town residents. To experience it not as a part of its creation, but as a citizen like any other, alienated from his or her labor and the externalization of abject matter. And after the flood, the matter reorganizes what takes place in the landscape. The EPA money allows for more work, now on the cleanup project. The ash creates new demands.

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<sup>134</sup> Former Swan Pond Resident, interview by author, Kingston, TN, July 6, 2012.

The language of “highly professional” men and the mise en scène of a control room set the stage (and dictate the wardrobe) for a performance of human agency; meanwhile, the sludge directs the actions. As with the painting inside the Steam Plant, it is out of the presence of abstraction that the object relations appear to make sense. The abstract is a limit that guides and enables the movement – it guides the coming into and out of view of an objective reality. As an abstraction of the void at the heart of certain electric desires, coal ash accumulates in perpetual material return. Consciousness must adjust to deal with this presence. The knowledge systems of, on the one hand science and engineering, and on the other, environmental politics, enter a struggle for the determination of a national mood about such matters.

But the point here, as with the painting inside the Steam Plant, is that the curve of an action is guided by its limit. What can come into view as a functional reality is spun out of chaos. What becomes the working problem of the 1970s TVA and electric power industry is a manifestation of a void. We don’t (want to) know about this flood, we can’t imagine it, or make sense of it, ever, because to do so would be to face the uncanny, and to glimpse that which moves beyond our own life, and death – a force of sheer indifference. Nothing rational about it.

## 5. Enrichment

*“The marketing department is getting a lot of mileage out of it.”<sup>135</sup>*

### *Secrecy*

A bomb blast echoes through the city park as I near my destination. I find parking in the lot in front of the movie theater, the one that is next door to the Oak Ridge Mall. I haven't seen this mall since I was a pre-teen shopper in the 1990s, attending movies and visiting Claire's for nail polish and hair clips on those rare, special trips to mingle and browse among objects desired for their ability to alter appearances. Now it is 2012 and the mall has closed, windows boarded up. It appears at first unkempt and shut down, until I circle all the way around and find that it is not in a complete state of decay. On the busiest street-facing side, a Wal-Mart inserted itself into the otherwise failed mall building. That facade of the former mall is busy, bustling with shopping carts and customers strolling to and from their vehicles in the large parking lot. I arrived in the vicinity of this mall and theater after being ushered out of another, large parking lot surrounding a restaurant. I was told by some of the restaurant workers cleaning up trash in the nearly vacant lot that my car would be towed if I planned to go to the Secret City Festival, rather than come in to eat.

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<sup>135</sup> Quote from an employee of Enrichment Federal Credit Union in reference to the re-naming of the bank, which used to be called K-25 Federal Credit Union, originally established for employees of the K-25 gaseous diffusion plant, which is now closed and undergoing demolition in Oak Ridge.

And so I eventually circle the mall, find the theater lot is available to festival-goers, park the vehicle and follow the other people, mostly families, who flow across hot asphalt, across the street, and into a large city park adjacent to the Atomic Museum.<sup>136</sup> Recessed into a field behind the museum, alongside a paved walking path, I see some bounce houses and activities around which families with young children gather. As I continue down the path the park opens up as a long field packed with people. The atmosphere is that of a fair. It is June and hot. I follow the sounds of bombs and cannon blasts.

In the distant grassy field grown men dressed in WWII camouflage and helmets duck and scurry to and fro, from trees to canons to makeshift hills and bunkers, with guns drawn. Around the perimeter, viewers watch. I jauntily position a recently purchased plastic bottle of water under my arm and eat a hot dog while standing. There is yelling from behind the artillery. It is mid-day and the sun is brightly shining on a scene of kettle corn, funnel cakes, hamburgers, children playing, families sitting together in the shade, and groups of teenagers showing personality with non-normative hairstyles who appear to want nothing more than to escape from any authoritative gaze and carve out a secret place of their own to gather. All these scenes merge together with the reenactment of a battle from WWII as a backdrop, though it is billed as one of the feature attractions of the Secret City Festival. Next to this pretend battleground, military recruiters beckon. Adolescents test their strength on the pull-up bar, the ropes, the rock climbing wall.

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<sup>136</sup> Formally re-named the American Museum of Science and Energy (AMSE), the place remains known as the Atomic Museum to many East Tennesseans. I use the colloquial.

Muscular US military recruiters in matching tee shirts, hats, and camouflage pants watch, and offer pamphlets. Explosions continue to punctuate the scene, providing a softly echoing soundtrack to the festivities. Soon, there will be music performances of the southern rock and new country variety. In the meantime, I stroll back over to a side stage where local dance teams are set to perform. There is a familiarity to it all.

Pre-teen girls with pancake makeup and sequin hot pink and black outfits stretch and warm up, then take the stage as the thumping bass of pop dance music overrides the bomb explosions from the other end of the park. Color-coordinated hair ribbons flap in the air as agile bodies leap, kick, and twerk in rehearsed unison. The multi-racial girls' dance team looks cool and confident in their performance, collectively committing their bodily movements to the evocative power of hip-hop dance choreography.<sup>137</sup> The hot summer sun shines down on preteen thighs and stomachs and faces as the crowd looks on. Obvious moms of the dancers, many in apparel coordinated with the team, smile and knowingly urge them on with proud expressions. An older man in farmer overalls wears a slightly bemused, curious expression. Men of all ages fix their stare on these small,

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<sup>137</sup> The City of Oak Ridge is home to noticeably more people of black and Asian ethnicities than Kingston, which is almost entirely white. I noticed several Asian families at the Secret City Festival. Many of the Asians in Oak Ridge came for jobs at the national laboratories. African Americans from the surrounding communities were hired by the federal government to work primarily in the cafeterias and as janitors during the war. A document detailing hiring and housing statistics from the Atomic Energy Commission archives from 1945 notes that in "Plant Production" (including categories of manufacturing, stores, industrial relations, superintendents) "No negroes will be required." Under "cafeteria and laundry:" "There will be 80 negro employees." A note from June 1, 1945: "Housing will not be provided for negroes." Carbide and Carbon Chemicals Corporation to Lt. Col. R. W. Cook, District Engineer, U.S. Engineer Office, Manhattan District, Oak Ridge, TN, July 16, 1945. Record Group 326, Oak Ridge Files 1942-1972, NARA, Atlanta.



limber female bodies. Others walk by and alternately ignore, gaze momentarily, or cast a disinterested glance as they move along in the flow of human traffic.

Shortly after my stroll through the festivities, I sign up for a tour of the Y-12 National Security Complex. For this tour, one must show proof of US citizenship (a driver's license will do), and agree to leave all cameras and cell phones outside of the campus once at Y-12. I wait with others for the shuttle bus to Y-12 outside of the museum. Elderly volunteers take names and write down home zip codes of visitors. After a long wait, a shuttle arrives and I board with a dad and his sons, and a few elderly couples. The tour guide is immediately engaging, asking about where we are from, and our connections to Oak Ridge. Everyone either worked at Oak Ridge in the past, works there presently, or had family members who worked there, myself included. The tour guide notes that Y-12 is today managed by Babcock Wilcox, and begins to tell the history of why it is here. Y-12 is a campus of industrial buildings that fills an area called Bear Creek Valley. During the Manhattan Project, the plant was constructed to house, primarily, the 1,152 calutrons used to enrich uranium for the first atomic bomb.<sup>138</sup> The valley area, previously populated with farmers who were quickly displaced by the military once the site was chosen, is secluded by parallel hills framing the swath of valley

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<sup>138</sup> Calutrons separate isotopes of uranium, and were developed by Ernest O. Lawrence at the University of California, contractor of the Los Alamos laboratory (the name calutron is condensed from California University Cyclotron).

land.<sup>139</sup> This landscape was selected due to this geological shape; such a grounds provide isolation and security. All power would come from TVA.

After a short bus ride, we arrive at the new Y-12 visitor center, which houses historical artifacts relating to the war effort and to space exploration. The artifacts and pamphlets I am provided – including a booklet titled “A Rough Road Leads to the Stars: Y-12’s involvement in NASA’s Gemini and Apollo Programs,” which details how highly skilled Oak Ridge machinists constructed a case used to return a chunk of the moon, the Apollo Lunar Sample Return Container (Moon Box) – focus my attention overtly on the positive, future-oriented contributions of the impressive scientific and technological prowess of the plant. While I wait in line to enter the Y-12 campus proper with my tour group, I chat with a young guard. Guards are everywhere, in matching tee shirts, hats, camouflage pants, and guns on their hips. I mention my uncle is a retired Oak Ridge guard, as if this connection might better ingratiate me into these militaristic surroundings, which always make me uncomfortable. Soon enough, it is time to tour the plant.

From the clean, modern building of the visitor center, we travel past an old cemetery in its grassy plot. It is outlined by a weathered split rail wooden fence and marked by a sign over the gate that memorializes the community that lived here before. We turn and enter the expansive field of decaying buildings left over from the WWII atomic bomb-making project.

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<sup>139</sup> The displaced families were given notice by the US military that the government needed the land for the war purposes and that they needed to evacuate immediately.

Many of these buildings look incredibly run down. The scene is a post-industrial wasteland in decay. The tour guide points out an old, crumbling red brick building that used to be the biology building, called the “mouse house” for the animal experimentation that took place inside. Our shuttle bus stops. We get out and enter a building named 9201. All the buildings here start with 92, the atomic number for uranium. Inside it is dark, a concrete and metallic environment with large looming machines that haven’t been active in years. In the warehouse of outsized and shut down war technology, an elderly man sits in a little plastic and metal chair, waiting for us to assemble before him. He tells us about how he came to Oak Ridge to take part in the war effort, and to work on the calutrons as a young man. He explains the alpha and beta calutrons, which use magnets for separation of isotopes in a large racetrack structure.

The story of Oak Ridge during the war revolves around secrecy. The city was a secret, and almost no one – among the many thousands of workers – knew what they were making, exactly. “Calutron girls” sat in front of switchboards along long hallways inside the industrial facility, operating the control panels. Photos of these women perched on rows of stools inside the machine are posted at the museum, in informational brochures, and on the Y-12 website’s historical photo section. It is mentioned during this tour that one job involved repeating a manual task, then handing the incomplete object to a person in an intermediary room, who would then pass the thing into another worker’s room to complete the next task in the work series, with the two workers never seeing or knowing one another, or what each other were doing – this way no one person could realize what they were making, or how it all fit together. This kind of separation, a

bracketing of bodies and tasks into the smallest units of information and repetition, ensured a lack of knowledge.

Thousands of workers from the surrounding areas were hired for this war project, and arrived daily to complete such repetitive work assignments. Other, higher ranking workers such as the top scientists and administrators of the project, were recruited from highly ranked research universities. Signs throughout the secret city implored residents to avoid small talk concerning their tasks. Billboards filled the town with such instructions, like the classic, “What you see here, what you do here, when you leave here, let it stay here.” The fortified and guarded place would hold these secrets, stories, and memories within its mapped limits. Later, the desire to know these stories would rise up to the surface, and the historicization projects would begin. If it all just truly stays here, buried, secret, ignored, it cannot matter. And if it is not made to matter, via the historicization efforts, then what was the point of this work?<sup>140</sup>

Eventually, the “Little Boy” bomb exploded onto Hiroshima, and the people of Oak Ridge gained awareness of what their hands had collectively created. The elderly tour guide comes to this moment in his story, and I can’t help but feel keenly aware of the only other Asian people in the room, beside myself – an elderly Japanese-American

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<sup>140</sup> Even with all the oral histories being collected by the Oak Ridge historians, the stories of what things were like in the town, and the ephemera that can be collected, the knowledge that can be assembled about this project remains limited. When I pulled the Atomic Energy Commission’s Oak Ridge files at the National Archives, I found amidst all the documents stamped “SECRET” but then allowed into the archive, that connecting pages were often missing. An archivist informed me that the files have been “carved up” drastically, on at least three separate occasions, once in the 1970s, again in the 1990s, and again in the early 2000s. He acknowledged that these removals left many files nearly incomprehensible.

couple, a man and woman, with white hair, standing a few feet away and listening with the rest of the tour group to the patriotic narrative of how the bomb ended a terrible war and secured the future. The old man ends his narration of the war's successful end with the statement that what took place in Oak Ridge, the secret yet collective labor and what it achieved, was a "miracle." I jot down a note of this mention of the miraculous with pencil on my paper tour brochure. When I look up, it is time for the tour to move on. As the group shuffles away, the elderly Japanese man approaches the old white man who told the story, and they silently embrace hands for a long moment.

The body language of this touching grips me. This image defines my memory of the Y-12 tour. I wanted to linger and eavesdrop, but manners overrode desire. I hung back a little, and overheard snippets of conversation, but nothing really intelligible. Some kind of thanks was exchanged. The body language was humble on both sides of the prolonged handshake, and there was an undeniable, unspoken moment of acknowledgement. As the tour continued, my mind stayed with this image.

Because I didn't interrupt this encounter to ask any probing questions, any speculation on the meaning of this scene for these two men, or for history, is pure conjecture. But the feeling the scene inspires in me is a sense of the vastness of connections that flow out of this valley landscape. The layers of infrastructure here – from the decrepit building in which I stand, with its long ago shut-off and obsolete technological apparatuses sitting idle, to the new visitor center and administration buildings that look like any modern American business park's generic corporate edifices – all govern movements of water, electricity, explosives, pollutants, animals, metals,

people, and values. The deer that scurry in front of our tour bus cross our path in an ecology in which they are monitored for radiation levels. The many creeks surrounding the valley empty into the Clinch River, which unites with the Emory River just above Kingston, before the waters flow into the Tennessee River a few more miles southwest of the Steam Plant.

Our tour guide tells us about the 14,000 tons of silver used in the calutrons, borrowed from the US Treasury, which was reclaimed and returned after the war. He mentions at one point that 2 (million, billion? I may have misheard, my notes aren't clear now, and what is the real difference for this story?) tons of mercury "went missing" during those years. He jokes that they are still hoping to find it. The joke acknowledges the absurdity of trying to perpetually identify, contain, and order unruly matter.

We ride the bus up to the hilltops surrounding this two-mile long valley and gaze down on the sprawl of industrial buildings. From this viewpoint we can see a giant switchyard, "where the power from TVA comes in." We see a big building, white, like a fortress or castle, with extremely thick walls. This is where enriched uranium is stored. The building can withstand a plane crashing into it. It's where all the nuclear weapons materials lie in wait – the big secret that needs all the guards to protect it. And yet, a month after my visit to Y-12, this building would be touched by an elderly nun and a couple of middle aged men, all anti-nuclear protestors who, guided by God, traveled to Tennessee, cut through fences, hiked the ridges at night, evaded several security cameras (which turned out to be broken), all in order to break into the national security complex and throw human blood on the side of the highly enriched uranium building, paint anti-

nuclear graffiti on it, and then wait with a message of God, peace, candles, and flowers for a guard to come and arrest them.<sup>141</sup>

During the tour of Y-12, our bus drives past a billboard with hands holding a globe that says, “Reaching the Future, Meeting Global Security Challenges.” My Y-12 brochure says, “Y-12 is an unparalleled national resource, whose goal today is similar to that in 1945: **Protecting America’s Future.**”<sup>142</sup> The narrative of Oak Ridge puts global connection and futurity front and center. And yet, despite this message of interconnectivity with nation, globe, and future, the origin story of the town’s entrance into history begins with isolation. Guarded security checkpoints at either end of the only road into and out of town limited movement. Secrecy, in the lives of Oak Ridge workers, was not just about curtailing discourse, limiting and silencing the spoken word, but also about the movement of bodies within infrastructure. The worker that passed an object through a door to an unknown other faces a limit of what the body can feel, sense, imagine, and incorporate into memory and knowledge. The military general who oversaw planning recognized that physical work shapes knowledge. Secrecy, or un-knowing, is enhanced in separation.

A former Oak Ridge worker told me that her job there, a post-war position from which she is now retired with a decent pension, was incredibly easy.<sup>143</sup> She showed me the training booklet that she used to operate the IBM punch card machines. She

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<sup>141</sup> Dan Zak, “The Prophets of Oak Ridge,” *The Washington Post*, April 30, 2013, <http://www.washingtonpost.com/sf/wp-style/2013/09/13/the-prophets-of-oak-ridge/>. This long form journalistic essay provides in-depth coverage of the incident.

<sup>142</sup> Bold emphasis in original.

<sup>143</sup> Kingston residents, interview with author, March 19, 2013.

mentioned that she could do 20 hours paid work in 7 hours. The labor was so easy, so routine, and she was so thankful to have the job. She had started as a janitor and, following job postings on bulletin boards around the plant, eventually found work on the early computers. The campuses of Oak Ridge, not just Y-12, but also K-25, X-10, and ORNL, would over the decades come to be filled with such workers – locals, relatives, and friends of early Oak Ridgers who found the work through word of mouth and were happy to have such a good government job. For decades these were among the best jobs around, with security, retirement, excellent benefits, time off, and all the other hallmarks of decent mid- twentieth century government work. With such a job, one could imagine the ability to secure one’s own future in terms of the dictates of mid-century American domesticity: a nice well-furnished house with modern appliances, cars, kids, savings, a little left over for fun. Many locals were able to secure jobs or apprenticeships in Oak Ridge with a high school diploma. Since then, Oak Ridge has followed the same trends as other major American industries – downsizing, contracting, flexible labor, stagnating wages, loss of benefits. The workforce shrinks as the physical infrastructure is abandoned. College grads compete for low paying contract jobs with little of the security afforded the older generations who have been “grandfathered in” with every change of the contractor.<sup>144</sup> The nation no longer desires such a large and physically imposing military infrastructure, but this one is too big to wholly abandon, as it is the basis of an entire city. It still supports so many lives in the region.

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<sup>144</sup> Former Swan Pond Resident, interview by author, Kingston, TN, July 6, 2012.



Oak Ridge was built in secret, and with a population devoted to secrecy. A secret, the keeping of a secret, is about the withholding of *a potential to know*. Imposed throughout the town's origin is a collectively shared history of participating in a life that would not allow for this potential. In the bomb, suddenly, everyone shared in a realization, an opening onto knowledge. The world altered in the moment of the bomb. This came into being out of a wide network of scientific knowledge, planning, and infrastructure across Los Alamos, Washington, Berkeley, New York, Chicago, Tennessee. The disparate locations of this undertaking speak to the necessity of its fragmentation, and the ways lives across several landscapes connect to enable such a production. The tour guide tells us that the uranium that was put inside the first atomic bomb was transported from Oak Ridge to Los Alamos for final bomb construction in a suitcase, chained to the wrist of its carrier, who took a commercial train across the country carrying the material. The complexity of the world exploded into Hiroshima returns, is re-presented in a handshake between two elderly men on a Saturday afternoon during a historical tour. Bodies flung through space and time, witnesses to the ways we kill to evade death, face one another, and embrace.

From inside the suitcase chained to the wrist of the carrier, enriched uranium advanced in its potential to open up new worlds. The singular carrier of the suitcase was chained to a potential to deliver on the promise of this matter. The value of the matter propelled him across the landscape of the southern half of a nation. A nation was given meaning and value in the dropping of this matter onto a Japanese city, and with that moment, the town of Oak Ridge is given a life and a meaning as a place that matters, a

place with a very important history, a part of the big story of the century, the fate of the landscape now worthy of commemoration, memorialization, and archiving. The uranium enacts an American national politics, just as it becomes the matter that assigns a history to the labor of over 22,000 Y-12 workers, who collectively forged its power without knowledge of its mattering. The location of this material also becomes a target for those who refuse this arrangement, and are willing to go to prison for violating the unspoken agreement that we should accept this nuclear fate and live complicit with its power.

With the exaltation of this landscape as essential to national power, the specter of death permeates the scene. Even if the xenophobia of war allows a distancing from the dead in Japan, the nationalism and patriotism that runs rampant through the region enhances feelings of pride, and the militarization of the area lends a commonality to killing, there remains the cancers caused by radiation, the slow death of deindustrialization and unemployment, the decay of a town gradually abandoned and given over to a common fate of rural struggle amidst shrinking resources. I wonder constantly about the ways that everyday trauma and pain seeps up through the cracks, flows into the currents of life. Something of an answer is provided in the story of prophecy I hear during the Y-12 tour. This is a commonly told story, and it bears repeating.

### *Prophecy*

John Hendrix, “the prophet of Oak Ridge,” lived in Bear Creek Valley since birth in 1856. He began having visions in 1900, after a young daughter died and his wife

subsequently blamed him for the death and left. He spent much of his time alone in the woods, and he began to tell people about his visions. He could see the future. One of his predictions came true, but, according to the legend, most people ignored his stories. At one point, he reported that he was told to sleep on the ground for 40 nights, and a great vision would be revealed to him. He did so, sleeping on the cold earth and roaming the woods, and then he saw the vision. He said that Bear Creek Valley would one day be filled with great machines, and people bustling about. He said there will be great noise and confusion and the earth will shake. This prophecy is said to have predicted Oak Ridge with great accuracy, and yet no one believed him at the time. He died before the changes he foresaw came to pass. He was buried nearby, and the legend was repeated once Oak Ridge was built. In recent years, a bold new headstone was purchased to mark his grave, securing his legacy as the “prophet of Oak Ridge.”

This prophecy is relayed to the visitors to Y-12 as a counterpart to the narrative of planned, scientific rationality and human achievement. It imbues the site with the mythical, and with a sense of pre-destiny. This legend of the prophet, a real living human whose lineage can be traced, sanctifies the landscape of nuclear weapons production. The prophecy corresponds to the elderly storyteller’s sense that the project constituted something miraculous.

The prophecy seems like something that should not co-exist with the cold logic of science, technology, and war. It seems to contrast the type of knowledge I witnessed on the same tour, when the man sitting near me on the bus continuously quizzed his two preteen sons on atomic numbers, chemical names, and nuclear physics facts. Side by side

with the father touring the plant (he noted this was his second tour – he attended both days of the 2-day festival) and dispelling facts to his sons constantly, are suggestions that the power that flowed from this landscape came not from science, but from a power that could be divined by listening to the ground. The prophecy is mentioned along with other narratives that might help this configuration of landscape and lives make sense.

Prophecy and national necessity are the dual myths offered to make sense of the insensible. The constant reminders about securing the future, helping the nation and the world, reaching the stars, miraculous achievement, prophecy, a sense of destiny and the secret work of many anonymous humans converges as an array of storytelling that calls into the present moment both the far flung future, outer space, and the agrarian past with its magic, prophets, and witches. The multiple narratives relayed here, the scenes and the stories, are a collective way of making sense of hands-on participation in mass killing. But while the sense-making narratives of WWII necessity, security, and human scientific achievement coordinated across the nation uphold a view of humans as powerful, world-shaping beings, the prophet of Oak Ridge gives consciousness over to the woods. His story of listening to the ground offers the perspective of the soil to the story of the secret city. The soil, as it would turn out, holds more secrets still.

### *Complexity*

After the war ended and the secret of the nuclear bomb was revealed, Oak Ridge opened up. The federal government transitioned out of management of the town, and it moved toward municipal normality. In a letter, from 1952, sent to “The Honorable

Gordon R. Clapp, Chairman of the Board, Tennessee Valley Authority,” a real estate developer, Guilford Glazer, President of Oak Ridge Properties, Inc., asks Mr. Clapp’s opinion on “a most important program on which our company is about to embark.”<sup>145</sup> Glazer writes that Oak Ridge “is now a thriving community of over 35,000 inhabitants, with permanent churches, houses, and government-owned industrial buildings, but with no permanent store buildings. (Cost of the city and installations to date is over one billion dollars.)” He continues that the “original master development plan” of the city included a space set aside for a business center and that “our company has been selected by the Atomic Energy Commission to develop this business center; and, if our plans materialize, we anticipate that our investment will be over \$8,000,000.” However, as he reaches the point of the inquiry, Glazer points out that “We would not make this investment if we did not believe in the permanency of Oak Ridge. The permanency of Oak Ridge, in our opinion, is contingent upon increasing civilian use of atomic energy in industry, medicine, and other fields of science as well as military use.” Thus, Glazer and his financial board are “very much interested” in hearing from “the more well-informed leaders in the United States” about whether this future for atomic energy is likely. The letter ends with an acknowledgement that of course, “the future of atomic energy is a guess on anyone’s part,” but that nonetheless, “we would be deeply grateful”<sup>146</sup> for the kind of authoritative assurances that TVA’s chairman might offer on the matter.

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<sup>145</sup> Guilford Glazer, President of Oak Ridge Properties, Inc., Oak Ridge, TN, to Gordon R. Clapp, Chairman of the Board, TVA, Knoxville, TN, June 19 1952, Office of General Manager Files, RG 142, NARA, Atlanta.

<sup>146</sup> Glazer to Clapp, June 19, 1952.

Gordon R. Clapp responds:

Dear Mr. Glazer:

Your letter of June 19 asking for an opinion on the future of atomic energy assumes omniscience I do not possess.

Assuming we have sense enough to develop, pursue, and promote policies, world wide, that reduce the probabilities of using atomic energy to blow us off the planet, one can agree that atomic energy will become increasingly important in civilian usage. This may well include the eventual production of electric power and expansion of the present use of radio-active isotopes for medical and industrial research programs, among other things. I make no attempt to predict as to either the extent of those potential uses or the time which will be required for their realization.<sup>147</sup>

Clapp opens with a frank declaration of his inability to know, moves on to point to the potential of nuclear annihilation, and ends with another direct statement on his inability to predict the future. The matter-of-fact tone of this letter juxtaposes the openly desiring tone of the letter to which it responds. Where real estate developer Glazer addresses Clapp as “The Honorable” in his address, begins the letter “Dear Sir:” and speaks of “leaders” in the U.S. as those most likely to possess the kind of foresight into the future that he so desires to secure an \$8,000,000 investment, Clapp responds with a straightforward statement of his lack of knowledge about the future.

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<sup>147</sup> Gordon R. Clapp, in response to Guilford Glazer, July 18, 1952, General Manager Files, RG 142, NARA, Atlanta, GA.

Both in its creation and in its wake, the men whose lives revolved around the nuclear power flowing from Oak Ridge desired security for the future. Protecting the nation transitions into protecting monetary investment. The future of the nation transitions into the ability to build a profitable shopping center. The land was already set aside.

Oak Ridge emerged from the war as a picture of the ideal American town, created by the federal government and so planned, organized, and built to give the outward impression of all the nation's most important values: individual family homes with identical interior layouts, with driveways and little manicured lawns, a technologically-oriented high school with the atomic symbol as its logo, a town center with shopping and entertainment, and a racially segregated community oriented around the values embodied in this infrastructure. While global nuclear annihilation has been avoided so far, the loss of security-feelings has deepened over subsequent decades. The boarded up mall was only the most centrally visible sign of decay I witnessed in the town of Oak Ridge. A majority of the matching houses the government built for workers along idyllic, tree-lined streets today show the outward signs of becoming run-down and trashed. Most of the scientific migrants have long since left. Elderly locals and their struggling, often unemployed offspring remain. Lawns fill up with cast-off children's toys, unused cars, and other assorted consumer detritus. I see from the stuff on the lawns indications of when the logic of thrift, the need to save things, slides into aberrations in trash. I know many people who do not throw things away, because you never know when you might need them again, and because things aren't free. Better let stuff pile up than be without.

Order falls away in the landscape of scientific modernity. Fear sets in where once there was fascination and rapture with the new machines. A local man who used to work at the Oak Ridge Enterprise Rent-A-Car told me a story about scientists who would come into town for brief stays, live out of hotels, and carry a trunk full of purchased bottled water because they were afraid to drink the running city water in Oak Ridge. Cars were returned to the rental lot with extra gallons of water in the trunk. The former rental car agent told me he asked one of the scientists if they drank the soda from the restaurants, and when they said yes, reminded them that the carbonated water is city water. He drank the water every day, and knew that the scientists couldn't fully escape contact with it. Still, these visitors could come and go from the "reservation," as Oak Ridge is called in reference to the sprawling, everywhere gated-off and still heavily guarded acreage devoted to nuclear science, weaponry, and waste.

Driving around Oak Ridge, signs and roadways direct one through the town center where you can see the markings of any American small town: car dealerships, chain restaurants, office buildings. Yet outside of the town center and planned residential areas, roads and pathways are gated, with signs noting that the property belongs to the U.S. government. If you are from here, you know armed guards roam behind the gates. Such roads lead into wooded areas or field. One can only wonder what secrets the land holds beyond the gates; unless you are an anti-nuclear nun on a mission from God who does not fear being shot, the Keep Out signs must be obeyed.

Beyond the gates and beyond everyday access, the terrain stores powerful secrets. The materials and bodies that entered the area during WWII produce new ecologies



unknown to the planners and scientists of the Manhattan Project. These, too, could not be predicted given the dearth of human omniscience about such matters.

During my visit to the Secret City Festival I was handed a glossy, color booklet with a radiant green title of “Advocate,” with a bright green leaf touching the “A.” The leaf glistens like a water drop. The green leaf and title are set against a banner image of a blue sky with loose little white clouds. The small print under “Advocate” reads, “A publication of the Oak Ridge Site Specific Advisory Board – a federally appointed citizens panel providing independent recommendations and advice to DOE’s Environmental Management Program.”<sup>148</sup> This pamphlet discusses the ongoing cleanup of nuclear waste around Oak Ridge Reservation, a toxic Superfund site. It includes board member stories, info about how to get involved with the advisory board, and details of progress on specific cleanup jobs. The board gathers regularly throughout the month to determine, as the voice of the local community, how to allocate federal funds in the many cleanup jobs necessary over the next several decades. The news on the cover of the April 2012 issue of the *Advocate* is that the demolition and cleanup of K-25 Gaseous Diffusion Plant is progressing nicely and will be completed on schedule. The demolition area of this former plant is about 5,000 acres. Highlights of the progress include that:

Cleanup and soil remediation in Zone 1 is complete at the K-770 Scrapyard, where 48,000 tons of scrap were reduced and disposed. More than 7,000 large cylinders of depleted hexafluoride gas were shipped off for disposal several years ago. The K-1070-A Burial Ground and Blair Quarry were cleaned up. In Zone 2

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<sup>148</sup> DOE stands for Department of Energy.

soil remediation is underway at the K-1070-B Burial Ground and G-Pit... 246

facilities have been torn down and their rubble disposed of.

The ongoing projects that need to be completed include “Demolition of K-25, then moving to K-27, the toxic waste incinerator, the Central Neutralization Facility, the centrifuge building, a group of buildings called Poplar Creek Facilities...” But, most of the job is complete.

As for the K-25 plant building, the west wing is demolished, and the remaining portions present certain problems and questions for the remediation effort. “The south end of K-25 has some technetium-99 contamination... while not a great radioactive danger, it spreads easily and can be a health hazard if breathed or ingested.” UCOR, the contractor noted as handling most of the cleanup, will go on to characterize and prepare the remaining areas for demolition, and determine “what demolition debris can go to the onsite waste disposal facility in Bear Creek Valley and what must be sent offsite for disposal.” (Most of the waste sent offsite travels to Nevada.) Finally, regarding the K-25 plant and surrounding areas, the North Tower presented a question of historical relevance and preservation. There was an intention to preserve some of it to turn it into a “museum/tourist attraction.” “But the old building is so decrepit that DOE thinks it’s better to tear it down and do something else to commemorate K-25’s place in history.” In this case, matter decided. The building, too decrepit to persist into the future, even as relic, will be torn down. Its material status determined its fate, despite the suggestion of desire to maintain it as a marker of an important past.

More secrets of the landscape flow beneath these built surfaces. The next section of the *Advocate* details a white paper that the ORSSAB developed outlining “the complexities of the Oak Ridge Reservation (ORR).”<sup>149</sup> The white paper is a summary of the complex challenges faced in the Oak Ridge Reservation cleanup, which “have been recognized for many years by waste management professionals, but have not been widely publicized.” The article notes in the introductory section:

Ironically, some of the main reasons the Oak Ridge area was chosen as one of the sites for the nationwide Manhattan Project – water supply, topography, nearby population center for workforce – now present unique challenges for remediation and cleanup when coupled with other factors, such as high rainfall and complex geology.

After this, the short report recommending that the white paper become more widely publicized details the unique features and challenges of the ORR. First, under the heading “Waste Types,” the kinds of materials in question are noted: “Many radioactive and hazardous wastes have been disposed on the ORR, the most frequently noted being uranium, strontium, cesium, plutonium, hexavalent chromium, technetium, mercury, hazardous organics, and dense non-aqueous phase liquids.” Next, the section “Disposal Methods,” lists the “wide variety” of methods used including “shallow burial grounds, engineered landfills, seepage ponds, pits, trenches, direct disposal of liquid waste in waterways, deep-well injection, flooded quarries, and underground tanks.” Setting this

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<sup>149</sup> ORSSAB refers to the Oak Ridge Site Specific Advisory Board, the group responsible for this publication and making recommendations to the federal Department of Energy.

site apart from other such nuclear waste sites is the geology of the landscape, which is described as “a complex formation of folded, tilted, and faulted strata with highly developed fracture systems.” These features mark the site as “the most complex of any DOE site.” The heavy rainfall of the region is noted at about 55 inches per year. The next section “Hydrology” gives a clear picture of the ways the landscape interacts with the activities taking place on its visible surface:

As a result of the geology, high rainfall, and karst development (dissolution of soluble rock characterized by sink holes, underground drainage systems, and caves) the ORR hydrology is very complex. Fracture systems control most groundwater flow, and the flow is difficult to use in predicting pathways for waste movement. There is close interaction between surface water and groundwater, and contaminants carried by groundwater tend to enter primarily the Clinch River, which flows into the Tennessee.

The brochure goes on to explain the “remediation technologies” in use, including “excavation and shipment of wastes to engineered landfills, compaction and in situ immobilization, open atmosphere burning, groundwater diversion systems, ex situ bioremediation of groundwater, surface impoundments, and in situ vitrification.” Finally, after a reminder about the surface and groundwater interactions, the piece ends with the explanation that the population density surrounding Oak Ridge is higher than at any other DOE site. The counties neighboring Oak Ridge together include about 815,000 people. This includes those downstream in Roane County, where the Clinch River carries these wastes through the center of Kingston. The primary reason for this paper, its key

recommendation, regards the funding for remediation. These federal allocations “have been declining for several years.” The report argues that cleanup will be “hampered by decreasing, or even level, budget allocations.” The ORSSAB hopes that the DOE will realize the importance of cleanup at the ORR, that it needs more money, and that the public should be informed and educated about the realities of the reservation cleanup process.

This document attests to a profoundly large and complex messiness. It details the uniqueness of this complexity. It displays the multiple ways systems interact and materials arrange human lives. From the visiting scientist who is scared of the Oak Ridge water, to the young man I met who works in nuclear waste disposal to support his four children (three of whom he had with his wife, one of whom they took in from a bad situation), to the men from the 1950s wondering about the future of Oak Ridge and nuclear power, to the man who carried the uranium chained to his wrist on a passenger train and beyond, these materials and their interlaced networks shape human lives. The planner moves things around according to desires and ideologies. But nowhere is this a contained control. National hegemony has yet to overpower complex, unpredictable groundwater flows.

Here, in the ORSSAB brochure and the environmental management program, are the admissions of the inability to manage such flows. To reiterate, “the flow is difficult to use in predicting pathways for waste movement.” Like the prophet of Oak Ridge, these advisory board members are trying, in certain ways, to listen to the ground, to predict its changes. Hypothesis or prophecy can predict, but it is the unknown that allows for these

utterances. In the ORSSAB, the listening they do does not take place in the woods, among the ground's movements and flows. They attend planned meetings on weeknights in rooms at a community center or a school and listen to presentations on the scientific understandings on these things, and on the governmental policies that relate to environmental management – a field that aims to merge a science of the environment with managerial techniques. They interpret charts and graphs and learn to use certain of the innumerable government acronyms. The advisory board collects, reconfigures, and promotes information. Its existence, as an attempt to involve the community in the cleanup process, highlights the ongoing desire to maintain humans as the managers of the world, to maintain the custom of management. Plans, meetings, brochures, and budget allocations are the ritualistic habits and actions used to try to order the unruly and manage an unknown future while the underground fissures and flows transform buried secrets in unpredictable ways.

## 6. Empty Little Sun

Picture Ronald Reagan smiling. With his half-cocked, open-mouth grin that looks so much like an ideal of modern American presidency. A smile that looks like an actor playing president in a Hollywood movie, which is one truth about what Ronald Reagan was: the figurehead of state, a trained actor, performing power. Ronald Reagan's smile, an affective icon that defined an era in the popular memory of the United States, moved many. Upon entering the fray of academia, as a TA in a dungeon of an office, a cheerful, confused undergraduate sought my help and explained her lack of education openly and with a strong sense of her limitations. She told me vivid stories of her community college experience and its ability to fail her educationally while launching her into a research university where she felt bewilderingly unprepared. She also told me about her parents' home in rural Minnesota, and a photo of Ronald Reagan that still hangs on the wall. She looked at that photo every day of her childhood life. She knew Reagan the way my grandmother knows Jesus, mainly through a looming portrait of the man on a prominent wall in the home. Reagan had it like that. He could smile and people might feel as if America pursued a great destiny in the history of the world. He could travel and bestow his grinning face on crowds, unified in their gaze upon his mouth, his slightly cocked head, his wave, all so presidential and coordinated and intentional.

Picture a time when Ronald Reagan prominently moved bodies and worlds, to action and tears, some reflecting his familiar smile back up at him, others, not so much.

The Cold War's final chapter, the big win for America. And just as America won the future, so to speak, it deepened in its internal anxieties over things like fuel and the economy, the quality of the environment and the quality of life. Nevertheless, Jimmy Carter, with his invitation to pursue a more holistic path, conserve fuel, and curb unnecessary consumerism, had been ousted from office. This was 1980s America; people wanted to spend. There were more gadgets and objects and shiny things than ever before, and hadn't people worked so hard, sacrificed so much to achieve this "far higher level of comfort?"<sup>150</sup> And in our location, in East Tennessee, Knoxville to be precise, nestled amongst the widely rolling foothills of the Great Smoky Mountains, Ronald Reagan smiled his iconic smile and began to speak. "It is a special pleasure for me to be here this afternoon," he began, "in the shadow of the Sunsphere, a symbol of the energy potential on the banks of the Tennessee River. All Americans can be proud of this World's Fair we open today."<sup>151</sup> With the presidential christening, the 1982 World's Fair, formally named the Knoxville International Energy Exposition (KIEE), and themed "Energy Turns the World," began. The power granted the fair through Reagan's mouth made it official.

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<sup>150</sup> Arthur E. Morgan's address (discussed in "The Grounding" chapter of this dissertation) includes the following statement on the overarching goals of development: "The Tennessee Valley Authority is endeavoring to work out ways by which local industry can grow up to balance local agriculture, in order that these people may use their surplus time, their natural resources, and cheap electric power, to achieve a far higher level of comfort." "Text of Address," May 21, 1934.

<sup>151</sup> "A World of Energy," 1982, ARC ID 2564188, Local ID 142.103, Moving Images from the TVA, RG 142, NARA, College Park, MD. This film focuses on the science behind the Clinch River Breeder Reactor Project. It opens with scenes of the Knoxville World's Fair opening ceremony, before moving into the breeder reactor technology. Much of this breeder reactor footage has apparently been removed from the archival film, likely because of the nuclear technology it highlights.



The Sunsphere, which Reagan mentioned as part of this opening onto festivities, stands tall in Knoxville, yet its height does not reach the magnificence of the world's skyscrapers. It reaches just tall enough to be seen within a rather small downtown area whose other tall buildings are a multistory corporate TVA building, a Hilton, and a few large banks. Built as the icon of this World's Fair, the Sunsphere basically looks like a large golden metallic disco ball in the sky, perched on top of a steel tower. The glass windows of the sphere contain a layer of 24 karat gold. The Sunsphere, built for this World's Fair, symbolizes the energy source of the sun it replicates, providing a sense of unity under the orb. Just as our solar system contains one sun, the source upon which life on earth depends, this little sun symbolizes for East Tennessee a centrality to flows of power on a global scale.

But this little sun is not the real sun. Rather, its jaunty glass panels, filled with gold mined from within the earth, refract the light of the real into this particular landscape. The Sunsphere towers over the center of a smaller universe – one whose energy radiates out, granting life to distant locales, but which is limited in its reach, its sparkling, reflective façade only seen by those who pass through East Tennessee and gaze upon it in passing. A smaller, built structure, an icon, a tower, a phallus, a ball, a mirror, gold, round, useless.<sup>152</sup> The Sunsphere marks off the East Tennessee landscape as a global energy center. Its symbolic replication of the sun imagines humans harnessing

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<sup>152</sup> For most of the three decades since the fair, the Sunphere sat empty and the public was not allowed to enter. Since 2007, restaurants have opened, and closed, inside it. With a new era of downtown revitalization underway in recent years, more restaurants and bars have begun to lease space inside, with plans underway to allow for these uses as well as rental for events.

energy, bringing it into plans of order and productivity in a globally connected world. Here, under this symbol, world leaders from disparate nations (primarily those rich in carbon fuel) would gather to plan and conference on the flows power should take. Yet in the landscape where world leaders conference on this cosmic power, the Sunsphere sits empty. Many see it as a joke, because everyone knows that it is empty, idle, and useless.

### *A Sense of Time and a Sense of Place*

Power and utility center the city. From the 1930s through the 1970s, Knoxville changed with the coming of the energy industries of TVA and Oak Ridge. In this multi-decade span of time, energy production from this region grew to world-shaping proportions. And yet, with the proposition for a World's Fair in Knoxville, the focus returned to the region's neediness, shortcomings, and ongoing failures to live up to the designation "modern." The downtown area was noted for its blight, pockets of low-income houses, run-down roads and signage, and unattractive power lines.<sup>153</sup> The fair could turn the city toward a post-industrial tourist economy. In the process of planning a world's fair in the 1970s, it had become necessary to speak to environmental concerns. The national mood over such matters changed over the previous decades, and now, new documents must be produced, to then be assessed by people in new agencies, to make sure that everything will be ok for the environment.

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<sup>153</sup> "Final Environmental Impact Statement: Knoxville International Energy Exposition," prepared by Haworth and Anderson, Inc. for US Travel Service of the US Department of Commerce, Spokane/Olympia Washington, March 1977, Knoxville International Energy Exposition Collection, MS.2071, University of Tennessee Libraries, Knoxville, Special Collections.

A planning document titled “Final Environmental Impact Statement: Knoxville International Energy Exposition,” explains the intricate details of this fair, from conception through planned residual use of the facilities, in over 300 pages. The reason for the document, aside from its role as a planning guide, is to meet the standards of the National Environmental Policy Act of 1969. NEPA states that it is the ongoing responsibility of the federal government to ensure “harmony between man and his environment.”<sup>154</sup> This includes leveraging national power (planning, policy, coordination, programs) to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations,” to “assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings,” to “attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable or unintended consequences,” to “preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice,” to “achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities,” and finally, to “enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”<sup>155</sup> This is all noted at the beginning of the planning document on the proposed World’s Fair, because it falls under “Section 102I of NEPA” which requires a detailed report on the environmental impact of any federal actions that may “significantly” impact “the human

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<sup>154</sup> NEPA quoted in “Final Environmental Impact Statement,” ix.

<sup>155</sup> NEPA quoted in “Final Environmental Impact Statement,” ix.

environment.” Thus, a report is required that details this “environmental impact” of the proposed activities, any negative effects it may cause, alternatives to mitigate those negative effects, explanations of “the relationship between short-term uses of man’s environment and maintenance and enhancement of long-term productivity,” and details about any resources involved in the proposed actions.<sup>156</sup> And so, this document details the effects of the fair on the “human environment” as well as the long-term uses planned for facilities. It does so as a piece of national information collection.

The Statement includes, importantly, the stated purpose of the proposed World’s Fair project: “to offer to the citizens of the world a greater comprehension of the effective use of energy and energy resources in the physical field and a more discriminating appreciation of creative energy in the artistic field.”<sup>157</sup> This means that the fair will include several exhibits from participating countries on energy sources, research, and uses of electric power. Additionally, the proposal states that throughout the fair there shall be a wide variety of artistic and cultural activities and performances including dance, films, music, arts and crafts, and museums so that the visitor may better appreciate “the importance of the opportunity for the release of artistic energy.”<sup>158</sup> Directly following this statement on the broad and idealistic purpose that seeks to unify arts and sciences under the banner of energy, the report explains a more practical set of goals:

A more implicit purpose of the proposed project is the revitalization of the City of Knoxville, both physically and culturally. The proposed project will serve as a

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<sup>156</sup> NEPA quoted in “Final Environmental Impact Statement,” ix.

<sup>157</sup> “Final Environmental Impact Statement,” 19.

<sup>158</sup> “Final Environmental Impact Statement,” 19.

catalyst for generating community spirit, civic pride, and economic development. The leverage of the redevelopment provided by the proposed project will stimulate new growth of high environmental quality in an area that is rapidly deteriorating. This in turn will most likely spur individual and business enterprise in renewing and rebuilding the center city of Knoxville.<sup>159</sup>

The language of this purpose statement mirrors the language of the National Environmental Policy Act, with its mentions of “high environmental quality” leading to renewal of the “individual and business enterprise.” The federal policy asked that national undertakings of this scale meet the vague goal of “environmental quality” while ensuring ongoing “productivity,” and the language of the proposal is tailored to fit the new mandate of the nation to care about the environment. The planning statement further notes that because of the site chosen for the fair, it would provide “a much needed alternative environment within the center of the city.”<sup>160</sup>

A concluding paragraph in this “purpose” section offers one last, more ambiguous goal, noting that this project will provide Knoxville “with both a sense of time and a sense of place” by restoring old downtown buildings, such as the L&N train station, and creating an “Appalachian Heritage” site for “future generations” to have a “visible history of their origins and cultural values.”<sup>161</sup> This comprises the core of the vision for the fair. It would present the city as a global center of energy production, while reifying the notion of Appalachia as a cultural heritage site. These activities together could potentially

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<sup>159</sup> “Final Environmental Impact Statement,” 19.

<sup>160</sup> “Final Environmental Impact Statement,” 19.

<sup>161</sup> “Final Environmental Impact Statement,” 19.

provide a decaying city a “sense of time and a sense of place.” Without such grounding activities, without downtown revitalization, the city center might continue to decay – a process that, within this epistemological framework, cannot provide these important “senses.” Acquiring a sense of time, of being within history, and a sense of place seems to demand that the city both propel out into a dreamed-of future and self-archive its heritage. It needed to escape the chaos and uncertainty of decay. It needed to place itself on a timeline. A big, important, televised event might order the landscape in place and time.

The fair emerged out of planning and coordination between businesses and the energy sector. Business leaders saw the World’s Fair in Spokane, Washington, from 1974, as an example of the potential such an event offered a city. The Downtown Knoxville Association initiated planning. Soon thereafter, a new group formed to represent the major energy interests in the region:

From the outset, the theme was tinted to be energy following as a natural result from the formation of the Energy Opportunities Consortium... an organization to coordinate the resources of the Tennessee Valley Authority, Oak Ridge National Laboratories, and the University of Tennessee energy related activities.<sup>162</sup>

By 1976, the Knoxville International Energy Exposition, Inc. was chartered by the state as a non-profit corporation. The first proposal for a fair in 1980 was deemed inadequate upon federal review, and re-drafted with a better chance of acceptance for the ultimate 1982 date. For the Knoxville business interests, the chance to receive funds to redevelop

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<sup>162</sup> “Final Environmental Impact Statement,” 2.

downtown featured prominently among the plans. The Environmental Impact Statement explains specific goals that will “hopefully” alleviate some of the problems that had prevented Knoxville “from becoming livable.” The goals the fair would promote included improving the highways and roads, geographically cementing a stronger connection between the downtown area and university campus, the alteration of a low-income residential area into a green space, the “location of permanent Exposition Structures in areas that will provide a framework for future growth,” new parking structures for the downtown area, and “the beautification and improvement of the river front.”<sup>163</sup> For the energy interests, the downtown revitalization and residual uses of these facilities included a plan to turn the U.S. Pavilion into a “combined energy research and training center sponsored by Energy Opportunities Consortium; University of Tennessee, the Oak Ridge National Laboratory, Union Carbide of Oak Ridge and the Tennessee Valley Authority.” With the planned pavilion next to the University, it could “provide the possibility of expansion, either as an independent research facility or as a part of the University engineering and science campus.”<sup>164</sup> The fair would alter the physical arrangement of downtown Knoxville to more closely link business, energy, and academic institutions. This physical connection would provide greater integration of their values and interests. Aside from this potential research facility, the fair would give the energy sector an opportunity for a major publicity campaign via sponsorship of exhibits, hosted lectures, and other public outreach functions throughout the fair.

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<sup>163</sup> “Final Environmental Impact Statement,” 7.

<sup>164</sup> “Final Environmental Impact Statement,” 14.

Before plans began for this World's Fair, the city of Knoxville lacked a sense of direction. The future remained unknown. Prior to 1972, a number of planning studies were carried out to overcome "creeping blight and economic decline," dating back to the 1930s. Several studies and proposals emerged over the years, but little direct human intervention occurred. In the mid-1970s, the mayor of Knoxville asked city planners to analyze these studies and to pull together "a sense of direction for the future of downtown Knoxville."<sup>165</sup> A committee established "a general framework within which rational decision making related to the downtown development could move forward."<sup>166</sup> This Redevelopment Task Force, assisted by the Boeing company, developed the long-range plans with a sense of rationality and forward movement. This Force proved instrumental in locating the large TVA office complex in the downtown area, and looked forward to the post-fair years when a new convention center would provide greater opportunities for commercial use and the site would link the business district seamlessly with the University.<sup>167</sup> This area, formerly called Second Creek, became the focus of World's Fair plans.

The constellation of human interests in the redevelopment of Knoxville, the primary long-term goal of holding the World's Fair in the city, converged on a specific patch of terrain, the Second Creek valley. According to the Environmental Impact Statement:

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<sup>165</sup> "Final Environmental Impact Statement," 1.

<sup>166</sup> "Final Environmental Impact Statement," 1.

<sup>167</sup> "Final Environmental Impact Statement," 1.



Aesthetic conditions within the proposed site are bleak. The urban quality is deteriorating at an exponential rate. Blight appears to be spreading out from the Second Creek valley in particular and infecting the surrounding neighborhoods. The aesthetic quality of the Second Creek valley is remarkable because of the predominant lack of features that would fit traditional and accepted definitions of beauty.<sup>168</sup>

This focus on aesthetics casts blight as a bodily disease to be eradicated. The accompanying photos of this area show aged apartments and houses. It describes residents as predominantly poor and/or elderly. These tenants would be displaced by the construction required for the fair, and these houses torn down to create a public green space and room for fair buildings. The site was selected to remove visible poverty from this area, and to enhance the available “intrinsic aesthetic values present in the terrain, in old structures, and in the vista potential throughout the area.”<sup>169</sup>

The “heritage” of the proposed site is briefly detailed, as are the “community values.” These sections describe the area as a “mixture of the ‘Old South,’ of Appalachia, of agriculture, of modern industry and commerce, and of a cultural renaissance.” The planning aid notes, “The first definitively recorded instance of a white man having seen the site of Knoxville was about 1748... development in the Second Creek valley occurred primarily in the 1840s and 1850s.”<sup>170</sup> In the long span of time from the first definitive recording of white male presence in the city to the present day planning by white men for

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<sup>168</sup> “Final Environmental Impact Statement,” 26-27.

<sup>169</sup> “Final Environmental Impact Statement,” 27.

<sup>170</sup> “Final Environmental Impact Statement,” 26.

the area, its future remained an open question. The era from the 1930s through the 1970s, when educated engineers, scientists, planners, and government agents moved into the region to work for TVA and Oak Ridge, saw the region transformed. Meanwhile, the city decayed. Sitting among the foothills of the great mountains, along the Tennessee River, the city remained characteristically ugly for most of its white-male-recorded history, yet surrounded by a natural beauty always mentioned in juxtaposition to its urban ugliness.<sup>171</sup> Once diagnosed as a problem, men in power began to search for solutions. Out of a visual reaction to unpleasant-looking aesthetics, men sought to harness energy to order space and time. This time, the harnessing of energy would be for a reflexive celebration of the ability of humans to do so, and in order to profit from new real estate and commercial ventures in the future.

Within the Final Environmental Impact Statement, longstanding themes of the region resurface, retold in the language of the time – a language of overt concern over environmental quality. The new keyword, “environment,” characterizes the discussion throughout, but the themes of ugliness amidst nature’s beauty, poverty and backwardness in the center of an area chosen to fuel advancement, and anxieties about the region perpetually falling behind in a nation obsessed with betterment all provide the narrative cohesion of the proposal, and allow it to work as a persuasive pitch.

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<sup>171</sup> In archival documents of TVA employees sent to the area, travelogues, and other reports by visitors to Knoxville, many travelers from different times and places discuss this characteristic “ugliness.” KIEE and TVA Pamphlet Collections, University of Tennessee Libraries, Knoxville, Special Collections.

Concern with the environment is expressed in the language of aesthetics. Claims about what looks beautiful and what looks ugly characterize the values of the planners. The values of the community are described as well. It notes that the “primary aesthetic influence in the area is the terrain.” And, “The general aesthetic character of the City is a manifestation of its heritage. To the resident, this may take the form of sentiment.”<sup>172</sup> The city possesses affective power related to the beauty inherent in the landscape. The terrain influences the character of the city, and its character creates feelings. There is an openly acknowledged psychology to the landscape. Emotions begin to surface in the planning document as well. The beginning of the planning aid uses rational, logical language to bestow power upon recognized authority figures and corporate bodies. It gives a sense that the World’s Fair is but an excuse for commercial redevelopment and a scheme by business and civic leaders to secure the necessary funding. But toward the end of the planning aid, it begins to reveal the real emotional power and affective force behind the desire for this big event.

The meanings of beauty and ugliness for the city, the desire for positive change, the problems and potential solutions all converge in a conclusion to the section titled “Aesthetics: Existing Conditions.” Discussion of the existing aesthetic conditions gives way to anxiety over the impression a visitor to the area may receive. “The visitor might ask, if the City is in transition, which way is it going. Is it showing signs of health or of disability.”<sup>173</sup> After posing this question, which positions disability as mutually exclusive

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<sup>172</sup> “Final Environmental Impact Statement,” 26.

<sup>173</sup> “Final Environmental Impact Statement,” 308 (lack of question marks in original).

to health, the planning document abandons the rational for the affective, continuing the metaphor of the city as human body in need:

From a closer perspective, the visitor notices that efforts are being made to improve the conditions of the City. There are evidences of symptomatic relief and cautious surgery. On the other hand, there is also the visual evidence of decay and blight and creeping degeneration of the body of the City... A snapshot of Knoxville today reveals a patchwork of new and sometimes innovative, and generally appropriate attempts to mend the body of the City. There is also the patchwork of bygone efforts and the indications of the abandonment of hope. This scene is not Knoxville's alone, but is shared by all of our urban centers.

Knoxville has witnessed several architectural ages, it has been through several epochs of design philosophy, and it has suffered the physical manifestations of the changing American dream. Each of these are recorded in the facades, the signs, and the cosmetic garnishments applied to the face of the City in hope of restoring lost beauty.

This is not to say that there is not beauty in the City. It is there, hidden beneath the plastic false-fronts, the neon signs, the dirt and grime, and the other embellishments of modern city life. Amid all the chaos is a common aesthetic character that is distinctly and remarkably Knoxville. One may glimpse it in the architecture, in the urban pattern, in the activity, and in the people themselves.<sup>174</sup>

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<sup>174</sup> "Final Environmental Impact Statement," 308.

The writing in this section is distinct from the rest of the planning aid in its use of metaphor, personal opinions on what constitutes beauty, and in the broad but evocative statement that it embodies “physical manifestations of the changing American dream.” This note on the physical visibility of dreams acknowledges that the landscape – its people, buildings, and terrain – provide evidence of changing psychologies of desire. Dreams exceed the individual in this explanation. They bind groups in ways that contrast the belief in individual consciousness that characterizes contemporary psychiatric practice. Group psychology becomes visible in the landscape, where dreams and desires play out in reconfigurations of matter.

Following these proclamations on the body and mind of the city in relation to the nation, the section laments that the city was “laid out in the traditional rectilinear fashion,” because this grid organization gave little thought to the “intrinsic opportunities of the landscape.” The hills, valleys, and curving riverfront were disregarded in favor of the functional grid. “There seems to be little space for human activities within the urban core. There seems to be no recognition that the City is for people... It is to be enjoyed, not just used.”<sup>175</sup> These less specific goals for the redevelopment are not just about business aims, but moral values. The image of the sick body requiring surgeries, lagging in a state of poor health, holds evocative power. The notion that the city should have been better designed to compliment the landscape contours reads like a strong critique of the very kinds of interests that commissioned the redevelopment study in the first place. At

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<sup>175</sup> “Final Environmental Impact Statement,” 308.

the heart of future dreams lie conflicting desires, hesitations, ambivalence about actions, and the acknowledgement of mistakes.

Whoever wrote the above section gave voice to how plans feel. Like with TVA, and Oak Ridge, the planner documenting the goals desires a positive outcome, to help, to make better, to heal, to solve problems, to work with purpose and positive intentions. At the same time, planning a big event is wrought with anxieties over outcomes, perceptions by others, and questions of relevance and importance. What would this event perform and enable? What values would it embody? The planner writing the document cannot individually control these things. The anonymous worker writes up a compilation of information, and at the end, adds metaphorical ruminations for evocative effect, including a critique of plastic and neon as aesthetically unattractive. This plan then went into circulation among those who review such things. The plans succeeded, and the fair was scheduled to proceed. The planning aid ends with a compilation of various news reports that capture the community reaction to the proposed fair. Most are critical.

The news reports gathered along with the planning aid contain headlines such as “Fort Sanders Groups Map Fair Protest,” “Local Citizens Outline Fair Problems,” “Interest in World’s Fair Is Low on Campus at UT,” “What’s Happening – Knoxville EXOP – expose?,” “UT Students Anti-Fair Arguments Applauded,” and finally, “Experts Convinced of Fair Support” and “Butcher Claims Expo Will Help Public Most.” In these last two articles (Butcher, a banker, was the chairman of the Knoxville International Energy Exposition), the leaders of fair planning describe the ways the public will ultimately benefit from the fair, while noting that they are not required to hold a public

referendum on the event – the goal protesters sought so that they might have the chance to stop it with a vote. Critics of the fair worried that it would cause horrendous traffic jams in the area, that the downtown was not equipped to accommodate the guests it would attract, that it would present an unnecessary disturbance, and that it would ultimately allow elites to make money while congesting the city and only causing disruptions for locals. A member of University of Tennessee’s department of political science, Joe Dodd, wrote a scathingly sarcastic book on the event, *Exposé: The Real Story Behind Knoxville World’s Fair*, in 1982. Dodd traces the opposition movement to the fair and the corporate interests that promoted it. He highlights ridicule of the event by US Senators and mainstream news organizations. When looking at this sarcastic book on the fair, I found tucked into the back pages a personal photo of the Sunsphere.<sup>176</sup> It looks small, standing in the background behind brick buildings lining a downtown street. A stream of soot-black smoke rises through the center of the image. The date stamp on the back of the photo reads “Walgreens 11/28/06.” I took the photo from the book and kept it. I returned repeatedly, during research, to this image of the Sunsphere. At the time of archival research, it seemed to appear like a sign, pointing my attention to the gold orb rising in the distance behind the stream of black smoke.

Dodd would likely have enjoyed a *Simpson’s* episode from the 1990s, in which Bart and friends take a road trip to Knoxville only to find the Sunsphere serving as a wig warehouse. Shortly thereafter, a boy’s slingshot topples the tower and smashes the

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<sup>176</sup> See Figure 9.

sphere.<sup>177</sup> Unlike in the *Simpsons* comedy, the Sunsphere actually sat empty and unused for most of its existence. Yet it appeared to me inside the library book, and peeked out from the horizon again and again while traveling the area. The gold orb is the lasting memory of the fair, and a joke on one of the most popular American TV shows of all time. The joke of the *Simpsons* – that the Sunsphere is actually filled with wigs – is funny because of the real question it invites: what *is* inside it?

### *As the World Turns*

The 1982 World's Fair, "Energy Turns the World," began in May and ran throughout the summer months. The old train depot was restored and an old timey candy factory built next door. Down the walking path, one could visit different exhibiting nations' showcases of energy and culture. The European Community presented solar power, while Australia showed an animated feature with song on conserving fuel. In the China pavilion, noted as one of the most popular of the fair, everything was for sale and the assortment of manufactured goods changed daily. Electric, gas, and oil companies had their own pavilions, including a TVA 50 year retrospective, and a NASA "technology and lifestyle center." West Virginia presented a simulated coal mine, Union Carbide created several battery operated toys and a mini circus. Dairymen, Inc. brought

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<sup>177</sup> Richard Appel, "Bart on the Road," *The Simpsons*, season 7, episode 148, directed by Swinton Scott, aired on March 31, 1996. Details from *The Simpsons Archive*, [www.simpsonsarchive.com](http://www.simpsonsarchive.com).



milk that could keep on the shelf. Entertainment took the form of music and dance representing the various countries' national traditions.<sup>178</sup>

In the July/August issue of *Aramco World Magazine*, the magazine published by Saudi Aramco, the national oil company of Saudi Arabia, a special report on the fair is introduced in the table of contents with, "A Welcome to the World – from the 'ugliest' city in America."<sup>179</sup> The cover of the issue features the Sunsphere, large, taking up most of the page, with blue sky in the background and a Saudi flag rising prominently in the foreground and covering part of the orb.<sup>180</sup> Inside the issue, the special feature offers a glimpse of the fair, written by an author who worked for the TVA information office. It mentions the participation of 21 countries, and 91 corporations. It mentions that the US pavilion featured Jane Fonda. It lists the "energy activities" of participants, including nuclear reactors, oil rigs, coal mines, and technology from robots to irrigation to a loaned IMAX showing films on America's energy past, present, and future. The magazine article asks, "Why Knoxville?" and answers, because it is the "Saudi Arabia of Coal," and because TVA is the 3<sup>rd</sup> largest electric utility in the world, and because of Oak Ridge. The Saudi pavilion featured a model of Mecca, including a model of the Grand Mosque, complete with the Kiswah gold embroidered covering of the Ka'ba. It aimed to introduce Westerners to the practices and history of Islam, while showing Saudi Arabia as "friend and partner of the US," a friendship centered on desire for oil.

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<sup>178</sup> Betsey Beeler Creekmore, *Knoxville Our Fair City* (Greater Knoxville Chamber of Commerce, 1984), KIEE Collection, MS.2071, UT Knox Libraries, Special Collections.

<sup>179</sup> Sybil Thurman, "The World's Fair: 1982 – A Special Report," *Aramco World Magazine*, July/August 1982, 2-13. KIEE Collection, MS.2071, UT Knox Libraries.

<sup>180</sup> See Figure 8.

Though the fair celebrated technological achievements, the festivities were not without technical problems. The computer-based reservation system derailed, meaning guests who paid in advance for the fair and a hotel were without a place to stay. The fair took place during a period of high inflation, and halfway through the summer as the interest rate and prices climbed, attendance dropped off. On several hot and humid days, the air conditioning system failed. At one point, a paddle wheel excursion boat meant for guests to tour the river sank at its dock. One afternoon, an aluminum-coated balloon lodged against a transformer and shorted the University's electrical system. In August, the fair was beset with torrential rains. Eventually, the fair ended, and all the "stuff" of the fair was sold off or shipped elsewhere.<sup>181</sup>

Surrounded by a world focused on energy and the future, guests strolled along walkways buying snacks and souvenirs, visiting the new candy factory, and toying with new technological gadgets. The fair memorialized a past and a history for the place and the nation, while dreaming openly of a future energy-environmental harmony. The US pavilion was solar powered. The global picture assembled here imagined a condition of life where control over electric power enables uninterrupted production. By this time, in the 1980s, electricity was fully cemented into society as essential to life. Where the development plans of the 1930s TVA saw a *lack* of electricity as a reason for the region's disorder and blight, by the 1970s, fair planners saw things like billboards, electric poles, and post-industrial urban decay as reasons for blight, while the necessity of power remained unquestioned. Electricity, once something that people in rural areas had to be

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<sup>181</sup> Creekmore, *Our Fair City*, KIEE Collection, MS.2071, UT Knox Libraries.

convinced to adopt, once a non-essential luxury, had transitioned into an essential life force. This is the story the fair relied upon and reinforced: *energy turns the world*.

Fuel sources, those mined from the earth or from human bodies, have often been characterized in terms of enslavement. At the same time, the gifts of fuel also take on the role of sacred treasures. Early industrialists exalted coal as a gift from God, and even suggested that the United States was especially chosen by God to dominate the world based on the abundance of coal lying under the earth's surface on the newly discovered and conquered continent.<sup>182</sup> As power flowed into homes in the domestic sphere, electricity was described in multiple twentieth century sources as a new “slave of humanity.”<sup>183</sup> The transference of a logic of enslavement is one way the flow of becoming an electrified nation made sense as a process of improvement, of wealth generation. In an early ad for an electric coffeemaker, a white housewife beams as her new little “servant,” the appliance, readies the caffeinated fuel to start her husband's busy workday.<sup>184</sup> Electricity, sold as a new slave to humanity, was something that could increase domestic comfort. The twin desires for comfort and security came to define American freedom. This meaning of freedom, as freedom from strenuous bodily labor, emerged together with the harnessing of electricity for new home appliances and gadgets – conveniences that today seem to self-perpetuate in the form of banal apps and games –

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<sup>182</sup> Barbara Freese, *Coal: A Human History* (New York: Penguin Books, 2004).

<sup>183</sup> Arent, *Power*, 1.2, 16.

<sup>184</sup> The metaphor of appliance as slave or servant was used throughout early electric advertisements. Louisan E. Mamer Rural Electrification Administration Papers 1927-2002 (#862), Archives Center, National Museum of American History, Smithsonian Institute, Washington, DC.

the kinds of things this World's Fair openly celebrated. The comforts of electricity transition into electric distractions; new habits form as the body wraps itself around devices that proclaim progress and connection. They draw attention and temporary fascination into their glow. The persistence of ambivalence over these technological arrangements persists. Electric necessities seem to proliferate despite the knowledge that this might be creating a much larger problem for humans. This results in apocalyptic fear or total dismissal. I was told by a religious woman, during a trip to Dollywood, that the waste streams of modern life, global warming, all those fears of ecological doom that seem to so deeply concern my colleagues in certain pockets of academia, to her signal only that Jesus is coming soon. He will deal with it all. It is End Times, so she can't be bothered to worry about it or recycle. I admired her lack of fear over an end that she believes we will soon face, but knows she cannot control.

The World's Fair, however, was centered on a belief in human power to control fate. The fair, with a theme of the ways energy powers life, performed a relationship of power to itself. This self-referential, reflexive performance and celebration of the modes of life power enables must necessarily share its dreams and beliefs to self-perpetuate its existence. This festival – with opening ceremony leading to months of long, hot, sweaty days – embodies the mainstream national energy narrative at the twilight of modernity. This moment embodies the culmination of the dreams of TVA and Oak Ridge. The breeder reactor – a breakthrough technology in nuclear power – featured prominently in the World's Fair narrative. With this, the power of the atom emerged as the new dream-potential material, something seen as holding a potential to fuel life efficiently,

harmoniously, perpetually. The future of the world, in the narrative of the fair, depended on global harmony among nations and the sharing of scientific ideas and new technologies, so that people could shop and eat in comfort, free of worries.

The Sunsphere, the icon of this power feedback loop and the totem of these beliefs, rises to symbolize this global, cosmological relationship to power. It is the totem pole that manifests the taboo around energy dreams. In *Totem and Taboo*, Freud instructs that the totem is the “object of veneration of a group” and that members of a group “assume the name of their totem and also as a rule *believe that they are descended from it.*”<sup>185</sup> We can think here of the widespread belief that we are all made of stardust, descended from the heavens and now on earth as moving embodiments of an original energy source that persists within the energy of atoms. This is a familiar part of the myth of the modern. Because we descend from an astrological, violent birth of atomic materials, the appropriate relationship to the sun becomes one of veneration. Regarding studies on the totem, Freud quotes that the totem is a *class* of objects (importantly, not a single thing but a set of things of a kind) that members of the group believe that they hold a special and intimate relation to, and which protects them, in turn demanding their protection of the totem.<sup>186</sup> Planetary bodies in the global imagination can be seen in this way, as the totems of modernity based on scientific rationality. The constant anxiety over protecting “our” planet relies on precisely this notion that people exist in intimate relation

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<sup>185</sup> Sigmund Freud, *Totem and Taboo: Resemblances Between the Psychic Lives of Savages and Neurotics*, trans. A.A. Brill (Amherst, N.Y: Prometheus Books, 2000), 180-181.

<sup>186</sup> Freud, *Totem and Taboo*, 178-179.

to it, having descended from the same matter as it. It is home, “mother,” and through its lineage offers us the shelter for life to unfold. As the environmental degradation of industrialism became visible, the immediate and visceral reaction of humans, those who see themselves as stewards of the earth and partners in its vitality, became to protect it. Another key aspect of totemism is that the symbol is emblazoned or tattooed on things. This is seen in the erection of the Sunsphere, the inclusion of the planetary earth images on documents, signs, posters, and in the media, and even in the atomic symbol used all throughout Oak Ridge, which derives from the finding that little orbs, like planets, exist within all things as an inheritance of the primordial cosmological explosion that sent tiny little spinning spheres into the nothingness of space, and out of which formed the larger orbs on which life takes place. Planetary orbs from the atom to the sun are the spherical objects of veneration from which it is said all life descends in the origin myth of science.

Because of the totemic relationship to the planetary, the festival – a World’s Fair called “Energy Turns the World” – calls for celebration to openly bask in the ambivalent relationship between moderns and their power sources. It is time for a holiday. In the totem meal, on the occasion of the holiday that Freud describes, the clan consumes the totem animal. In the totem meal of the World’s Fair, the energy of the planetary is that which is openly consumed, with the consumption of earthly and solar energies far exceeding what is normally considered morally responsible. Though the environmentally concerned planning statement emerges out of a national desire to protect the environment, to look after it as human caretakers and to not ruin it, the fair itself is an open display of rampant consumption of energy, foods, technologies, all in a gluttonous

moment of enmeshing with energy sources. Freud writes of the occasion of the celebratory consumption of the totem:

There is also the conscious realization that an action is being carried out which is forbidden to each individual and which can only be justified through the participation of all, so that no one is allowed to exclude himself from the killing and the feast. After the act is accomplished the murdered animal is bewailed and lamented. The death lamentation is compulsive, being enforced by the fear of a threatening retribution, and its main purpose is... to exculpate oneself from responsibility for the slaying.<sup>187</sup>

This also describes the complex relationship between energy, consumption, and environmentalism. When it is energy that is ravenously consumed (rather than an animal carcass), the necessary compulsive lamentation (environmentalism) derives from the fear of planetary punishment for moral transgressions against the earth. In this festival celebrating energy, responsibility is excused via massive consumption as a group participatory activity. Freud continues to describe the moment of consumption of the totem:

But after this mourning there follows loud festival gaiety accompanied by the unchaining of every impulse and the permission of every gratification. Here we find an easy insight in to the nature of the *holiday*.

A holiday is permitted, or rather a prescribed excess, a solemn violation of a prohibition. People do not commit the excesses which at all times have

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<sup>187</sup> Freud, *Totem and Taboo*, 244-245.

characterized holidays, as a result of an order to be in a holiday mood, but because in the very nature of a holiday there is *excess*; the holiday mood is brought about by the release of what is otherwise forbidden.<sup>188</sup>

It is through this process that members of a clan strengthen their bonds of unity and identification, as they collectively absorb the energy of their shared totem. But for Freud, the explanatory power of this example only leads to further paradox and speculation. He asks, “If men are happy over the slaying of the totem, which is otherwise forbidden to them, why do they also mourn it?”<sup>189</sup> These are the affective conditions of moral law, and they don’t necessarily make sense. There is excess not only of consumption, but also of feelings about the consumption. These are powerful, productive forces that form the connections among power, landscape, and everyday life in electrified societies.

From these explanations of the relationship between totem, taboo, and holiday or festival, Freud goes on to speculate about the ways that this feast of consumption translates into the Christian rite of eating the body and drinking the blood of the father. Surely these “primitive” ritualistic and religious forms of society fall outside of the modern self-imagination, which relies centrally upon the notion that with progress and science such antiquated beliefs were left in the past. Progress as a myth demands belief that all that is described above was done away with at some point, when belief in magic transitioned into belief in science. And yet within the modern ethos exists the taboo on anyone who violates the belief system. Who dare question the inherent value of progress,

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<sup>188</sup> Freud, *Totem and Taboo*, 245 (my emphasis on “excess”).

<sup>189</sup> Freud, *Totem and Taboo*, 245.



science, and technology? Under this totemic belief system, energetic matter within the earth and shining out from the sun – all descended from the atomic power of tiny unseen particles – form the sources of all power on earth. These primordial sources of all power have since come under the control of humans in order to fuel a social belief system and arrangement of life amongst objects of desire. Within this totemic system, anyone who challenges technological advancement, who dares question the national devotion to belief in the ability of scientific rationality and new technology to perpetually improve human lives, must be taboo. A luddite. A contrarian. Out of touch with reality. Moral law at the level of the totemic does not easily give way.

### *Let the Sunshine In*

The Sunsphere is a gold-filled mirrored ball on a pole that symbolizes belief in a global, cosmological relationship to power and that from which humans descended. As a built structure, a modern totem pole that begs protection and veneration of the planetary, it brings the sun down into the landscape to mark out a place and a time when men believed that the consumption of planetary power might draw them closer together into greater harmony with earth and with one another on a global scale. Such are the dreams of those who would like to buy the world a Coke, and teach everyone around the globe to sing in perfect harmony. At the fair, under the Energy Turns the World theme, nations and people gathered to dance and sing, eat and drink, shop and sweat. Eating the power, the participants in this ritual holiday consume that which they fear may bring retribution. They lament their killing of the planet, as totem, as holiday feast. A false little sun shines

over a small American city in a landscape where more power was brought out of the earth and out of atoms than perhaps anywhere else in the nation. The Sunsphere presides over this holiday, the hollow center of a dream vision for the energy future.

Desires that built the Sunsphere and the Saudi pavilion, that rearranged the highways and beckoned to Reagan, cohere in an empty reflective golden ball. It reflects and refracts light, and the gaze upon it, back out into the hills that surround the small city at the foothills of the ancient mountain range. With mountains rising behind and a river cutting through and flowing into the valleys to the west, the Sunsphere marks off a place where what is in the earth surfaced, mixed up with human hopes and fears, dreams and desires, and reworked the landscape according to certain values: a belief in linear temporality, human agency, rationality, progress, management, and the scientific method. This vision of power reflects off the empty ball hovering above the consumption of all energy sources, but the desires behind this vision still managed to build this fragile little world, and the worlds it touches.

Sitting in July 2012 in the public green space along the concrete-lined, terraced creek at the base of the Sunsphere, it is blisteringly hot. The depressed valley, the former Second Creek area, has the feel of a generic, organized city park: benches, walking paths, plaques of commemoration, manicured grass, and walkways leading out either to the downtown business district or to the University campus. It is mostly an empty little space. No one seems to use it except to pass through. A little higher up on the grade, the old train depot and candy factory, built as fair attractions, appear as quaint tourist destinations. Here in the World's Fair park, the cut grass and cement creek seem wholly

unnecessary, boring even, in a place where just beyond the downtown you can enter the woods and see a creek of the non-concrete-lined variety, walk in the irregular underbrush, or stake out along a beaten-down path cut through by hikers. When you can go into a great river's rapids, scale mountain peaks, and go deep into the woods, perhaps your city does not need a neatly ordered creek in a modern, concrete park. In any case, no one really uses this planned, tidied up swath of land. And up above it, the golden Sunsphere glitters in the sky as an equally empty icon, while each successive generation of city leaders wonder what to do with it. It may be hollow, but they can't just tear it down.

## 7. Dead Presences

At every turn, I confront the dead. I notice a new addition to the highway signs – the ones before an exit that alert drivers passing through unfamiliar territory on our interstate highway system of an upcoming opportunity for gasoline or fast food. There, next to the BP logo, a new square with the words, “African Burial Ground.” Even with the highway sign, there are no more clear indications of how to get to this location. Exiting onto another highway, the one that leads into Oak Ridge, I see no signs of the African Burial Ground. But driving from Kingston to Oak Ridge day after day, I decide to figure this out.

Google leads me to some pictures on one of those simple homemade websites from an earlier internet era, a vision of crude html. I find that what I’m looking for is a rediscovered slave cemetery. And I will find it by going down the road a little ways from the K-25 plant, and then turning up a little gravel driveway just off the highway, and into the woods. This gravel drive is located just before the much more visible new K-25 historical site marker and overlook point on a hillside.

I do all of this.

I shove the keys to the rental car into my cut off jean shorts; I approach the slave cemetery. The heat is oppressive and sweltering. Beads of sweat push out of every pore and at once my skin is changed into a tropical environment as clothing clings to my damp

body. An omnipresent discordant insect song rings out a monotonous minor key note.

Dead leaves and twigs crunch under my sandals.

Outside the iron fence encompassing the cemetery, on a little grassy, tree-filled hilltop from which the highway remains visible in the background, I face a tall black marble arched tombstone. It stands taller than my height, a signpost marking out this space, describing its contents. In white engraving into the smooth black marble, it reads:

WHEAT COMMUNITY  
AFRICAN BURIAL GROUND  
ROANE COUNTY, TENNESSEE

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THIS CEMETERY AND MEMORIAL  
IS DEDICATED TO THE MEMORY  
OF THESE AFRICANS  
WHO WERE IN AMERICA  
IN BONDAGE,  
RATHER THAN BY CHOICE  
AND LIVED, WORKED AND DIED  
IN BONDAGE IN  
THE WHEAT COMMUNITY

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*When I Read My Title Clear  
To Mansions In The Skies  
I Bid Farewell To Every Fear  
And Wipe My Weeping Eyes.  
Issac Watts*

MAY 26, 2000

The marker faces inward, away from the highway and power lines, and toward the deep woods.<sup>190</sup> A cleared, wide path, large enough to drive a truck through, flanks one side of the fenced-in cemetery. Hovering over this automobile-sized path, a yellow gate – the kind that can swing open or closed, topped with yellow and black striped tape and circular red reflectors – presents another little sign full of information:

**U. S. DEPARTMENT OF ENERGY  
GATE  
5-P  
FOR ENTRY  
CALL PSS 574-3282 6 A.M.-6 P.M. M-F  
FOR AFTER HOURS & WEEKENDS  
CALL OROC 576-1005**

To the immediate right of this yellow barrier lies the gate to the African Burial Ground. A black metal fence with thin squared posts, every other post topped with a spear and bead shaped decorative motif, opens at the door marked by a faded artificial flower wreath turned a pale chalkboard green from weather, with dusty pink bows.<sup>191</sup> Now I am inside the cemetery. I shut this gate behind me.

Inside, I face another tombstone. This one made of gray stone and much more detailed, historicizing. In the distance of the enclosed cemetery space beyond the headstone, the woods appear idyllic. Great tall trees rise up, but the underbrush has been cleared. This alteration to the patch of land creates a lovely condition of mottled light, a

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<sup>190</sup> See Figure 10.

<sup>191</sup> See Figure 11.

forest clearing unlike the surrounding woods, which remain overgrown and impassable.<sup>192</sup>

Now inside, I confront the large headstone/altar. Because slaves were buried with no names on the headstones, this one story becomes their collective identity in memoriam. And what were their names in life anyway? Slave names given by masters who owned them. Namelessness here is compounded. The large gray headstone is also an altar, where I see carefully placed and arranged offerings: a plastic hair pick, a single fuzzy house slipper faded by sunlight with matted fibers, a pack of Newports, some Post-Its, Axe body spray, a battery, a can of Coca-Cola. Endearingly placed objects index a society made to live via the death of these bodies. These materials call to mind a freedom to possess and discard trinkets, to smell manly like an Amazonian rainforest with the press of an aerosol button. But there is something about the dirty and faded house slipper that reads differently. It evokes the image of the female body, housekeeping, raising children perhaps, the need to relax on the porch with a cigarette after dinner. I don't know any of this; I'm just guessing.

Like so many material histories, this one sat unknown for several decades – buried, hidden away, at once out of sight and *right here*, just off the side of the highway: Gallaher Road. This is the highway I grew up on, my childhood street address where we lived just at the edge of Kingston's border with Oak Ridge, right down the road a stretch from where I now stand, our home location providing an easy commute for my father to his job at K-25. My little yellow childhood home, built by my gramps, first dog, first day

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<sup>192</sup> See Figure 12.

of school, school bus route. This summer I learn that Gallaher was one of the few prominent slave-owning families during the 1800s. I've returned to Gallaher Road. Since I've been away, this cemetery has been "discovered," marked and memorialized. This headstone, the unifying story now told about the collective death just beyond, reads:

## WHEAT COMMUNITY

JOHN HENRY AND ELIZABETH INMAN WELCKER OWNED AND OPERATED A PLANTATION NAMED LAUREL BANKS AS EARLY AS 1810, AND POSSIBLY 1805. THIS PLANTATION WAS LOCATED ALONG THE BANKS OF THE CLINCH RIVER WHERE THE EAST TENNESSEE TECHNOLOGY PARK (FORMERLY THE K-25) PLANT NOW STANDS. JOHN HENRY DIED IN 1838 AND ELIZABETH DIED IN 1840. IN 1847 GEORGE HAMILTON GALLAHER, SR., BOUGHT LAUREL BANKS. ACCORDING TO THE 1860 ROANE COUNTY CENCUS GEORGE GALLAHER, SR.'S PERSONAL ESTATE WAS VALUED AT \$36,000. THIS INCLUDED \$25,000 WORTH OF REAL ESTATE AND AT LEAST 19 SLAVES. THIS CEMETERY, NOW NAMED THE WHEAT COMMUNITY AFRICAL BURIAL GROUND, WAS FORMALLY KNOWN AS ATOMIC ENERGY COMMISSION CEMETERY #2 - SLAVE CEMETERY AND WAS SOMETIMES REFERRED TO AS THE GALLAHER - STONE CEMETERY. IN 1979, DOROTHY MONEYMAKER, A RESIDENT OF THE WHEAT COMMUNITY, COUNTED BETWEEN 90 AND 100 GRAVES WITH NO INSCRIBED MARKERS LOCATED WITHIN THE CEMETERY. IT IS PRESUMED THAT SLAVES WHO ONCE BELONGED TO THE WELCKERS AND GALLAHERS AND SOME OF THEIR DESCENDANTS ARE BURIED HERE. IT IS ALSO POSSIBLE THAT SLAVES AND THEIR DESCENDANTS, WHO LIVED ON OTHER FARMS IN THE AREA, ARE BURIED HERE. SOME OF THE OTHER FAMILIES THAT OWNED SLAVES AND LIVED IN THE VICINITY WERE THE BURUMS, CARMICHAELS, STAPLES, HENLEYS, ELLIS, AND RATHERS. WE WILL NEVER KNOW THE NAMES OF THOSE BURIED HERE.<sup>193</sup>

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<sup>193</sup> See Figure 13.



The composition of this memorial rises in contrast to the objects at its base. It is a flat gray surface where carved-out crevices and curves, a series of ordered absences, allow the eye to perceive words from what are textural dark hollows. These words squish together nameable people, places, times, dates, histories. Below all this information, the teal plastic hair pick with pink tips, the green ball point pen, the Altoids tin, the blue lighter, the decorative fake metal and plastic candelabra, the loose change placed all around, and the orange plastic football-shaped squeeze-to-open coin purse, the Copenhagen chewing tobacco can, the torn out pages with both English and Hebrew writing topped with a purple and blue plastic Easter egg and a big rock, provide color, decoration, signs of life. The colorful things decay at varying rates and tell stories not in sentences and words or in carved memorial speak, but in the open-ended ways that object encounters allow us to feel. These objects attract. Placed here, they resonate with a remainder of the feelings bound up with their acquisition and careful placement by unknown others.<sup>194</sup> These things open me up to feel for lives outside of the properly historicized world that bears the names and death dates of the slaveholders and mentions of the K-25 plant.

I go on to visit the dead. Some headstones are curved in the typical dome shape while others are like blocks. Some seem to be simply large rocks, but perhaps very roughly chiseled into the appropriate shape. There are footstones, too, so that the space of each whole body is laid out in a small earthen diagram.<sup>195</sup> And now anyone passing

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<sup>194</sup> See Figures 14-16.

<sup>195</sup> See Figure 17.

though can stop by here and remember one thing held in common about these long dead people's lives: slavery, a terrible thing.

Looking down, a whole world of insects renders the earth's surface frenetically alive as ants scurry across my feet. This patch of land is in motion with overlapping, intersecting paces – the rapid flow of ants; a steady and slow movement of growing grass, brush, and trees; and with dead human bodies underfoot physically disintegrating at the rate of decay determined by soil, insects, weather. Moss grows on mounds and rocks. A gnat-filled wind spirals up in a gust and then the bugs gently float away. These movements mark out separate but entangled durations of life and afterlife.

The insurmountable, unimaginable amount of loss, a huge volume of immaterial lack looms in this space. I know so little, here. The size of this void feels weighty. There are layers to this nothingness. I wander around. There is almost nothing, but there are remains. There are remains, and the desire to mark them out, for remembrance. In the clearing inside the fence, a tranquility of feeling swells up, a feeling familiar from hanging out in cemeteries (a pastime). Something melancholy and beautiful to it. Something not like knowing, but that gives understanding nonetheless.

Back out on the hill, back past the big memorial marker outside the gate, off the pathway on the other side of my parked car, another sign about the road being closed to the public, another fence blocking a dirt road carved by absent automobiles. It's like this off every main highway in this part of Oak Ridge. All the acreage is part of the big secret.

Gates everywhere marked “Dept. of Energy Gate 3-A,” etc.<sup>196</sup> Near the old gates that flank the entryway to Oak Ridge I find (near another gated-off, unpaved road) a tree marked with a sign “DO NOT DISTURB, DOE Oak Ridge Reservation Record Tree Collection, SILVER MAPLE (*Acer saccharinum*) For information contact:...” Looking up at another tree, I see some kind of green paper box with an open side stapled to the trunk above my head with “01-J4” written in large black marker. But back out near where my car is presently parked, back outside the slave cemetery, I see that the next stop along this side of the highway, much more clearly marked and visible from the road, is a scenic overlook onto the K-25 campus that sits in the expansive field directly across the highway. The state-official historic marker includes some facts:

As part of the Manhattan Project the K-25 plant was designed to house work on separating U-235 from U-238 through the gaseous diffusion process. At the time of its construction, it was the largest industrial complex in history. Plant construction began in 1943 and was completed in 1945. Over 25,000 construction personnel worked on this plant. The main building exceeded 44 acres in size.<sup>197</sup>

Beyond the sign, a broad hilltop overlook with a small house-shaped shelter, surrounded by a proper parking lot with lines indicating precisely where to place your car. Though mine is the only car here, I follow the lines as directed. Inside the shelter, WWII history sprawls along on a large, plastic-coated timeline reaching from one side of the building to the other. Outside in the treeless, freshly mowed clearing around the overlook, a model of

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<sup>196</sup> See Figure 18.

<sup>197</sup> See Figure 19.

a converter like the thousands used inside the plant, complete with explanatory plaque, sits inside a little circle filled with small stones.<sup>198</sup> Below and to the side of the historical marker signage, another plaque, noting the corporate donor, “EnergySolutions... who purchased BNG America (formerly BNFL, INC.) in 2006.” Walking back to the wooded edge of this clearing, which runs parallel to the slave cemetery just a dozen or so yards to the side and obscured by the woods, I can see to the sloping edges of the distant mountains looking gradient shades of slate blue. Between here and there, some unknown masses of war waste sprawl out into the earth and sink into the groundwater.

I fix my gaze closer, onto the K-25 campus, so vast you can’t really see much of it other than the big white rectangular building at the end of the front parking lot.<sup>199</sup> Like the slave cemetery, this too had been kept secret, a place where unknown stories are buried. Now, it is being demolished. The process is slow, due to the multi-ton amount of toxic and radioactive waste it houses. Both these places, two sides of the same road, are each monuments now, places where the dead exert their presence on living memory. And just about everyone who lives around here zooms down this highway in their vehicles, speeding past these seemingly static bits of the roadside landscape on the way to and from life’s errands.

### *On Namelessness*

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<sup>198</sup> See Figure 20.

<sup>199</sup> See Figure 21.

The highways all lead to the places everyone knows, and up the highway from Oak Ridge sits the town of Norris, Oak Ridge's predecessor in many ways. To build the first TVA dam in Norris required major population removal. Rummaging through boxes like tombs in the archives, I find countless official records of these lives displaced. Among the exhumed and reburied dead, many remain nameless, but not all. In any old cemetery around here, you can find unmarked gravestones. Bodies without names, without histories. We know company names, slave owner names, because of their record keeping and census participation. Because of them we have a knowable history. The nameless mark the limit of historiography. Limits are everywhere. But standing at the limit of historical knowledge, in the cemetery of the nameless dead, among the unknown remains of a war project profoundly large scale, complex, and rushed to completion, within an archive where records contain blanks, or where the national security demanded pages removed again and again to scrub out the potential threat of acquiring certain knowledge, an acknowledgement – a form of knowing, converges in my person. I know that which I cannot name. It is not a conscious thought, but a strong and moving current of feeling.

I get a feeling about knowing that many committed suicide rather than face displacement in Norris. I get a feeling when I see the grave removal records filed under "Hatmaker." Later, my grandfather gives me a copy of an old map from before the population removal. The area, "Hatmaker," marked out as an unincorporated town or community, along with all the other communities all named for the people who lived there and worked the land, before everything on the map was renamed for the Senator

from Nebraska who had them removed to build a dam. Norris, a federally planned town, owned by the US government and later sold at auction to a private investor, brought wealthy and educated people into the area, creating a progressive community with no church and legal drinking. No black people lived there, and “county” folks regularly worked as maids to many of the wealthy newcomers who populated it.<sup>200</sup> Norris came to be the town where TVA chairmen, directors, and managers lived and mingled together, a newly located progressive enclave imagined as part of a social and environmental alteration that would positively influence locals simply by having educated elites around.<sup>201</sup> Later, “Oak Ridge took some of the heat off” of Norris, in terms of local resentment over resettlement.<sup>202</sup> Before the new Norris community arrived, others had to be removed.

*On the border of namelessness, knowledge, and death*

The first thing I come to know about Minuard Perry is his last name, first. Then, after two dashes, “Tract 1366.” Throughout the several pages of documents in the manila file folder on this one population removal case, the first name will alternately be listed as

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<sup>200</sup> Oral History Records, 1965-1993, ARC ID 1079749, Sound Recordings and Textual Records from the TVA, RG 142, NARA, Atlanta, GA.

<sup>201</sup> “Review of Social and Economic Conditions in Five County Norris Area,” 1940, Office of General Manager Files, RG 142, NARA, Atlanta. This study details the impact of the dam. It states that despite any unintended negative consequences that “changes in the physical and social environment will inevitably lead to intangible changes in the habits and characteristics of the people themselves,” and that these effects are “more profound” than tangible or measurable impacts. This statement is included in a report of over 100 pages charting all measurable changes.

<sup>202</sup> Oral History Records, 1965-1993.

Minuard, Minyard, Minford, Miniard, and Maynard.<sup>203</sup> Three of these documents are legal agreements that bear his signature. On two of the legal documents, it is clear that he spells his own name Minuard. The “P” in Perry, in each of these two thick, pencil signatures, reaches up to a high peaked line before descending back down to form the rounded part of the letter. On the third signature-bearing document, a legal release freeing TVA from any claims of damage, the signature appears to be a forgery. The “P” is shaped totally differently, and the first name is signed “Maynard.”

But that comes later. We are still only on the first official page of this case, from the beginning of the encounter. Below the name and tract number that serve as heading, there is a two-column structure for the information to flow below. The first left hand column heading: “Date of Visit 9/26/35 (Carmichael).” To the right in a separate, wider column, the information corresponding to this date of visit includes the directions to the Perry home. Other left hand column categories include, from first to last, “Home,” “Family,” “History,” “Relatives,” “Problem,” “Resources,” and “Plan for Removal.” This is the common layout of the typed-up report on each family removal necessitating documentation. I sift through many of these – sitting alone at a large table under fluorescent light at the National Archives south of Atlanta, careful to only place one archival file box onto the table top at a time, using the archive-provided pencil and paper – before I reach the typed explanations of Mr. Perry’s life at the time of displacement.

The “Home” section explains that the community is one of tenant farmers who

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<sup>203</sup> Minuard Perry case file, Family Removal and Population Readjustment Case Files, 1937-1948, ARC ID 656701, Textual Records from the TVA, RG 142, NARA, Atlanta. All of the following quotes about the Perry family come from this case file.

live in houses “of very poor construction and in bad repair.” “This family are living in a two room log and boxed house with very meagre (sic) furnishings and absolutely no home interest shown. However, they only recently moved to this location...” Under, “Family,” the people’s physiques and appearances are described. “Minyard Perry is a small man and does not look at all well. When questioned about his health, he stated that his trouble had been diagnosed as tuberculosis complicated by pellagra in advanced stages.” He was out of work. Mrs. Perry’s appearance is described as “almost as bad as her husband,” though her disabilities were unknown. The children appeared to be doing somewhat better than their parents to the extent that “would be expected in such a family.” Anna had rickets. She used to be “crippled” and unable to walk, but was doing better. Older members of the family “have absolutely no education and appear to be sub-normal mentally.” It is noted that education has been “absolutely neglected” despite a school within walking distance. As for “History,” “So far, nothing of the family history has been learned either from the family, neighbors, or case records at the relief office.” Finally, the “Problem”:

There is a definite health problem in this family. Both medical attention and proper food are badly needed. However it would seem that the social problem is pre-eminent due to the fact that they are not very likely to benefit by medical assistance until they are brought to see the need of it. They do not seem to be at all alarmed at their condition and the only thing that seems to trouble them is the possible removal to other communities of substantial farmers who know the family and have always contributed to their support by supplying either a type of



work that the family was physically and mentally capable of doing or direct gifts. At present the family are not receiving aid from the relief administration because the man was assigned to WPA. The proper relocation of this family would be very hard without assistance and cooperation of some relief agency.

As for their "Resources," these are noted as "limited." With former landlords and neighbors all facing removal, the community assistance that supported their lives was disappearing. At the end, under "Plan for Removal," "The family have no plan at present for satisfactory removal."

Because of their problem status, this family's removal file is much longer and more in-depth than any of their wealthier landowning neighbors, most of whom could be written up as having a "satisfactory" plan, "case closed." Even those farmers whose dispositions were noted as hostile or angry were "case closed" so long as they took the money offered and moved away on their own. Because of their lack of a plan, the Perry family would be closely monitored and documented for a period of time, culminating in their eventual relocation. The process of this relocation, as depicted in TVA official memos and reports, is a story that requires imagination to complete. All we have are these listed observations, typed by officials, and affixed to dates.

November 14, 1935. A memo to and from medical officers of TVA. Subject: Examination of families in Norris Reservoir Clearance Area. "I. Minford Perry Family":

Mr. Perry was not seen at the time of the interview. His wife stated that he was at work and that he was in very good health at the present time. About two months ago he had suffered with influenza and had not progressed as rapidly as he should,

but he is steadily improving at the present time and is able to work. His wife is in good health and has six children whose ages range from eleven years to six months, and all are apparently in good health. This family seems to be in good enough physical condition to be moved into a tent or other type of dwelling.

Later, a follow up report by Carmichael notes that on December 2, 5, and 9, calls were made to a brother, Arthur, about moving the family to his farm if Arthur leaves. There are further notes that suggest Mr. Perry finds odd jobs, but nothing stable. By 12/13/35, Carmichael again reports that Mr. Perry has not found relocation, but “promised” to go find out about the possibility of moving onto his brother’s property. “The family were urged to reach an immediate decision due to the fact that roads were getting very bad and family were living below the 940 elevation.” The New Year passes and Carmichael reports again on the family on 1/16/36:

The situation of this family remains practically unchanged. Mr. Perry has been making a few feeble efforts to find a relocation, and has made some attempt to get permission to place a tent, but so far with no success. It appears that the Perry family is not very desirable as tenants due to health conditions, and numerous other reasons which cannot clearly be defined even in the minds of those who refuse to allow their property to be occupied by this family.

The case escalates toward some eventual action in a report from 2/6/36, again by Carmichael. This one describes how a meeting was set up between Mr. Perry and a Mr. Whitlock, of the Relocation Service, to which Mr. Perry failed to appear, yet later claimed that he was indeed at the designated meeting place at the correct time. Further,

Mr. Perry attempted to buy some property from a Mr. Graves, but then later decided not to move there. Mr. Perry was then “told it had now reached a point where he would have to make a decision at once or that tents would be erected for him on property that was available and that he would have to move.” Mr. Perry asked for a couple more days to either figure out where to move, or at least where to put the tents. Carmichael concludes, “It would seem that Mr. Perry still has an idea that he will force the TVA to grant him help, such as in the purchase of land, etc. However, it would seem that this family probably can be moved within a week.”

Next in the file, a “Tennessee Valley Authority Property Receipt,” filled out with handwritten notes on the possessions (“2 loads lumber, 2 loads hay, 2 loads household furniture, 2 loads corn, 1 load livestock”) “Hauled by B.C. Ousley for Miniard Perry to Flossie Miller Farm Sharps Chapel, Tennessee.” The page following this in the archival file folder is a lengthy contract agreement for the tent into which the Perry family would move. The official heading reads, “TENNESSEE VALLEY AUTHORITY [line break] LICENSE TO OCCUPY TENT ON LAND OWNED BY UNITED STATES GOVERNMENT AND USE OTHER PERSONAL PROPERTY OF THE TENNESSEE VALLEY AUTHORITY.” It is a form containing blank lines where particular names, dates, and locations can be added. For example the first line reads:

Tennessee Valley Authority, as the agent of the United States of America, does hereby grant to \_\_\_\_\_ Miniard Perry \_\_\_\_\_, the license and privilege, subject to the conditions and stipulations hereinafter set forth, to occupy a tent located at \_\_\_\_\_ Flossie Miller \_\_\_\_\_ farm, Sharps Chapel \_\_\_\_\_ together with the

wooden floor, sand box, and heater and fixtures now in, or to be placed in, said tent for a period of 365 days.

The language goes on like this for two pages, filled with phrasing like, “Licensee accepts the use... for the personal use of the undersigned members of the immediate family... agrees to protect the same from all damage and to return the same to the Authority at the termination of this license in good condition...” And, “The occasion for the furnishing of this accommodation to the Licensee is the fact that the Licensee cannot obtain other location at this time and must move from his previous habitation by reason of clearance operations in the Norris Reservoir purchase area.” Further stipulations explain that Licensee accepts all risk, for the health of himself and his family, that he cannot hold the Authority liable for any problems with the tent, any problems that ensue for his family, or for their livestock. Further, the Licensee “agrees not to damage or injure in any way any of the live trees or other property on the land occupied by the tent... and will be held fully responsible for any such damage.” At the end of the tent lease period the Licensee “agrees to remove himself, the members of his household, and all personal property from the tent and from the Norris Reservoir purchase area.” The document is signed by Minuard and his wife Stella on “this 17<sup>th</sup> day of March \_\_\_\_\_, 1936.” And so, according to the accompanying Property Receipt, the Perry family moved into this “16 x 16 pyramidal tent complete with side walls, floor, and stove.”

The final legal contract following this receipt for the tent bears the presumably false signature. It is a short, typed paragraph, also of the fill-in-the-blank variety, that

states that “we hereby release the Tennessee Valley Authority” from any claims that result from this moving. These document are all signed in March of 1936.

The first follow-up on the tent living situation is dated October 20, 1936, by someone listed as “Wilson pma” It begins, “Mr. W. R. West, formerly a case worker of this section, reported that a rumor is current around Maynardville that Minuard Perry is very ill and will probably die very soon.” The report goes on to detail the health conditions of the family:

Mr. Perry was found propped in a sitting position in his bed in the tent and Mrs. Perry was sitting beside him fanning the flies away. The six children were playing on the floor of the tent with improvised toys. Mr. Perry was very pale and emaciated and stated that he had become sick six weeks ago with pneumonia which had been followed by typhoid, but that now his temperature was normal and that his only illness, except for being very weak, was a swollen left leg...

A new section heading describes the “Appearance of House” as “the cleanest and most orderly” of all of the tent living situations visited by the case worker. He notes that the “tents were stretched very taut and the floors were extremely clean; the appearance on the outside of the tents was very clean although two small pigs were running around outside.” The clothing of the Perry family was also reported as “cleaner than is usually found among reservoir families.” Quilts and bedding, also clean. Pictures and other furnishings indicated to the observer “a very good housekeeper or recent housecleaning.” This is described as in “direct contrast” to when the case worker visited the family when they were “living near Clinch River.” Thus the report that Mr. Perry is on the verge of

death is written up with a detailed description of how much cleaner his tent appears than the house into which his family had just moved when TVA visited them and instructed them to find a new place to live.

In this same document, in which the case worker arrived due to a rumor of pending death, there is a description of yet another "Removal Problem." In this instance, Mr. Perry is noted to have held onto lumber delivered to him for the purpose of building a house, yet cannot build the house on land "promised by his wife's sister, Mrs. Flossie Miller," because TVA had just bought her land, too. "Consequently Mr. Perry has no place to go." And because of his physical condition, they can't move and are very worried about the coming cold weather months. Mrs. Flossie Miller lived in a "small house about 150 feet from the tents." She "stated that she had signed the deeds for only one piece of her land, but that the TVA engineers had told her that both plots had been bought." These conflicting property claims didn't bother her any, though. "She stated that it really did not matter to her whether they had been bought or not, that she could not live long, and nothing mattered anymore." As for her land and what would become of it:

She stated that should we discover that TVA had not bought one of her tracts of land that she would be glad to allow Minuard Perry and his family to erect a house there and she would give them the land on which it sat. (Inquiry was made October 22 of the Land Acquisition Division to determine the status of Mrs. Miller's land.) It should be noted that Mrs. Miller's statement "that it did not matter to her what became of her land" was probably used as an opening lead to give her opportunity to tell about her unsuccessful operation and her present

condition, because Mrs. Miller has several children and their only source of living is this land.

Though the land may be Mrs. Miller's family's only source of life, and though she would soon die leaving relatives in limbo, TVA reports that it turns out they owned both her tracts of land. "Mr. Perry was rather downcast" about this news since he hoped he might be able to build a house there. Mr. Perry reported about trying to purchase land from another man, but being unable to afford it. "Mrs. Miller when visited had no comment to make upon being told that the money she had received covered the payment on both properties." Workers would continue to try to help Mr. Perry locate a place to build a house, as of November 2, 1936.

The case nears its official conclusion in March 1937, with "Johnson" and "Wilson" each with the letters "kvh" after their names, reporting, March 3, 1937:

The Worker has been unable to follow this case since the last entry. In case nd (sic) immediate removal plans can be worked out for Mr. Perry, additional tents should be supplied him as the two tents which he has are leaking very badly, and Mrs. Miller stated that during hard rains they were forced to move into her house. March 15, 1937, notes, "While passing the tents formerly occupied by Minuard Perry, it was noticed that they were vacant." Mrs. Flossie Miller told case workers the family moved out because the tents leaked so badly. Mrs. Miller was "very anxious" to have the tents removed so she could plow her garden. The Perry family was subsequently found "living in a large two-storey log house on the Thomas L. Davis and Company tract, NR 850." They were with an "eleven-day old child" and had to move from the tents because

of this baby, and because two other children had the flu caused by water leaking into the tents. His family was desperate and so traveled eight miles from their tent to squat in this large, warm house over the winter. "Mr. Perry had apparently recovered from his lame leg but claimed to have a constant headache or neuralgia. He was wearing a rag bound bightly (sic) around his head at the time of the visit." They received food aid from a relief agency as their only source of sustenance. This worker notes that the search continues for land where the Perry family can live and that, "Both Mr. and Mrs. Perry appeared to be anxious to move into more permanent quarters altho it is doubtful if a better and warmer house can be found. Mr. Perry was informed that his coming into this house was a trespass against the rights of the TVA and that he is subject to legal penalty." The report documents additional unsuccessful inquiries into living with relatives elsewhere. Eventually, TVA arranged with a Leslie Graves to help Mr. Perry build a small house on some of his land. Mr. Perry "was not ready to move" but "upon the insistence" of his case worker had his possessions loaded up and moved onto the Graves farm. Mr. Graves agreed to allow Mr. Perry to live there for two years with no promise of garden lands. At this, "This removal is considered to be more satisfactory than any previous living arrangements this family has had, so far as is known by this Section. It is still, however, not a socially desirable relocation and should be followed closely. Case Closed."

This entire case of a family dealing with obvious health problems and physical disabilities, and perhaps also mental disabilities, portrays the values in circulation as the land changed from farming communities to a large modern dam and town for the wealthy. Those who needed help the most, and who previously lived within supporting



communities that provided free gifts, were pushed to the brink of death, while those with means were “successfully” relocated. The promise behind the dam, to modernize and improve the population, relegated the vulnerable to tents in the winter not out of malice, but because of the epistemology of the fill-in-the-blank form, the order of the legal contract, and the liability release. The family, once a part of a self-sustaining community of people working within the landscape, were made “responsible” for their selves and for leased state property in their new tent home. The moment of federal involvement in their lives corresponds to a diminishing ability to receive care from neighbors, as the neighbors were scattered to surrounding areas. The gifts of the free tent for a year and some lumber mark the final moments of giving, and result in an “unsatisfactory” yet “closed” case.<sup>204</sup>

The entanglement and disentangling of two systems of value and exchange transpire in this case. One social circuit is replaced by another, which attempts to replicate the exchange of community gifts, but does so only as charity constrained by government bureaucracy, a system embodying the values of liberal citizenship – the demand of self-governance and a legal-judicial contract model centered on property ownership above all else and as ultimate goal. To be outside this system is to risk death.

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<sup>204</sup> Michel de Certeau writes about the “return of a sociopolitical ethics into an economy system” as “no doubt related” to the system of reciprocity that organizes social networks described by Mauss in his study of potlatch and gift. Certeau states that the potlatch/gift network continues to be seen in modern economies: “It survives in our economy, though on its margins or in its interstices. It is even developing, although held to be illegitimate, within modern market economy. Because of this, the politics of the ‘gift’ *also* becomes a diversionary tactic. In the same way, the loss that was voluntary in a gift economy is transformed into a transgression in a profit economy: it appears as an excess (a waste), a challenge (a rejection of profit), or a crime (an attack on property)” *The Practice of Everyday Life*, 27.

Beyond these official, archived reports on the Perry family, their lives are unknowns. But there are so many more stories beyond these official statements. There are case workers who felt for this family, who, within the confines of the forms and their formal sections, deeply described what they saw and thought of these living beings whose lives remained in a state of flux, occasioned by the overriding desire to modernize the riverfront landscape.

Because I see these documents in the archive I know of this life, pushed to the edge of death by a force of change that arrived on the doorstep one autumn afternoon and told a family they must move. In the TVA photograph collection, comprising all the negatives and prints of photos shot by the one, single, official, authorized TVA photographer of the project, I find another family.<sup>205</sup> I find this family in a file folder at the National Archives in College Park, Maryland, comprising the photographs of the landscape slated to become the bottom of the lake once Norris Dam was completed. The photographs show a range of families and homes both small and large, different agricultural activities, schools, and churches. The image collection contains portraits and landscapes, all in black and white, and together gives a sense of the community before the dam. A family appears to me and I am gripped by the image. I hold this trace of their ephemeral lives in a glossy, wrinkled flat paper rectangle in my hand. The photo is so light it is almost weightless. And yet I sense within it a life dense with familial love.<sup>206</sup>

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<sup>205</sup> Lewis Hine Photographs for the TVA, 1933-1933, ARC ID 532624, RG 142, NARA, College Park, MD.

<sup>206</sup> See Figure 22.

There are a total of four images of this family, yet the first one I see strikes me most powerfully. The image shows a family gathered around a fireplace. They are posed so that each person is shown in profile. On one side of the fire, the mother, lithe and pretty with dark bobbed hair, strums an acoustic guitar with long delicate fingers. Intricate wood inlay decorates the face of the instrument with a floral motif that lines the contours of the curved wood that allow the instrument to rest comfortably on the body. Behind her, a small dresser is topped with a cloth, a floral arrangement, and some other decorations that are hard to see in great detail in this photo reproduction. On the walls hang various objects, mechanical and organic. At her feet, a boy wearing suspenders over a long sleeve shirt and denim holds a puppy. He and the puppy face his sister, who also sits on the floor on the opposite side of the fireplace at her father's feet. The father in white shirt and dark pants holds a long stick for stoking the fire. Between him and his wife, and in front of the two children seated on the ground, lies a pile of sticks to keep the fire alive. Another boy in overalls and a dark long sleeve shirt stands behind his father, resting his hands on the back of the chair. A bed is visible behind the standing child, but it is cut out of the frame with only a small portion visible. Several objects, images, and toys line the top of the mantle above the fireplace. This includes an image that resembles the three children, toy trucks, and a decorative ceramic pot with a painted floral pattern. Drawings on paper hang along the face of the mantle, layered and overlapped to feature as many of the images as possible. The objects along this featured wall of the home appear haphazardly yet carefully placed. Attention seems to be not on order and cleanliness of design, but on the act of display.

Another of the four images of this family shows one of the boys creating a drawing while his father watches. Each image in this archive file is marked with a code on the back, for example, H-65. On a corresponding typewritten sheet of paper, a legend for these codes on the photos, I find a limited amount of information about this family. “H-64 Esco Glandon, a renter, lives at Bridges Chapel on land that will be islanded by the Norris Dam reservoir. His son has developed some talent in drawing. Note the drawings along the mantel of the fireplace. Taken 10-31-33.” Next the entry under “H-64A” notes, “Esco Glandon, a renter at Bridges Chapel near Loyston, Tennessee. He rebuilt the cabin in which his family lives. Glandon has lived all his life in this region except for 3 years in a glass works in Kokomo, Indiana. Taken 10-31-33.” The H-65 entry, the one that corresponds to the image detailed in the paragraph above, provides this caption: “The Glandon family around the fireplace in their home at Bridges Chapel near Loydston, Tennessee. Glandon’s wife plays both the guitar and the organ. Taken 10-31-33.” Another caption for image H-66, the last of the Glandon family taken of their backyard, shares that, “The children have shown considerable ingenuity in building a playground in the backyard.” These traces of the familiar are not of death, but of a vibrant life, filled with happy objects in an atmosphere of artistic talent, craftsmanship, intimacy and care.

The image I hold in my hand gives me so much, with so little information. I see the value of the arts, of music and drawing, unite the family. I see a woman whose enjoyment of playing music led her to acquire a beautiful instrument. I see a family of creativity, a family that cares to display the art of their members. I see slender bodies in a humble home filled with love and life. Of course I do not know much, I do not know any

of their names except for the father, the head of the household that TVA documentarians of the time chose to label as the leader of this group of humans. I do not know of their struggles, their fights, their pains and regrets. I know only that here is a family in a home that loved art and displayed it prominently, just before a new government agency flooded the land in which this image was taken. I know that they are filed in a box in Maryland with others who faced a similar fate. I can say what I know, but saying what I feel is harder. I can tell you that this image of a family first caught my attention, and that sitting in a fluorescent archive I held the image longer than the others. I stared into it and forgot about time. I brought it up close to my face to try to see all the details. Because of the rules around reproducing images from the archive I could take a picture of the picture but to get a print made from the negative would cost and require more steps, so in the immediacy of this image's power over me, I brought my iPhone camera close to it and focused it on the glossy surface. The lights from overhead cast a glare so I huddled over it and bent it to minimize the obscuring glare. I took a picture of the picture. And then I took close-ups of sections of the picture, of the woman with the guitar, and the boy with the dog, and the mantle full of art and meaningful objects. I could see densely packed into this image layers of things and bodies and feelings all drawn together in an arrangement of care and familial love. The richness of feelings within and emanating from this image both stopped me, and immediately moved me. I became overwhelmed with indescribable feelings about lives I will never know.

## 8. Making a Living

*“Of all the things everyone does, how much gets written down?”<sup>207</sup>*

Until I began this project, my grandad and I were not close. Years would pass without any contact. I have no meaningful childhood memories of him. I saw him little before we moved to California, and after that, the distance made me feel as though my immediate family occupied a small raft adrift in a world apart. Later, I had to jump off that raft and swim away from them all. That was before the ash flood.

I was not even sure what to call him when I returned. The others call him Grandad, and so I learned to do the same at 27 years old. It is not that we didn't like each other, or want to know each other. It's just one of those family circumstances that predates my entrance into the world, an entrance into a story I am still learning. Closeness simply didn't happen, until this. Until I asked these questions. I figured, despite advice from academic professionals, that certain of my relatives (Grandad and Aunt Crystal to be specific) make great local contacts. They provide entry into a world I distanced myself from for most of my life, out of a sense of independence coupled with anger and a kind of shame about the South and the more distasteful features of this little rural world, as I had perceived it, before. Everyone knows everyone or knows someone who does, and so who you know is important here. I had to get over a lot, and quickly. I would go forth humbled by the willingness of relatives, old friends, and in-laws to help. I

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<sup>207</sup> Certeau, *The Practice of Everyday Life*, 42.

would accept the perspectives of everyone I met. I gained much more by traveling into unfamiliar spaces with a familiar local chaperone than when I arrived at an interviewee's house alone. My grandad helped me without asking questions, or even making me aware of his intentions to help. It is as if he intuited the needs of this project. He told me to come to his house one day, and he would show me around, and tell me stories. "Telling stories" is an important and highly valued quality among his friends.

Grandad took me on a trip to the mountain towns where he grew up, to Eagan and Clairfield, in Claiborne County, high atop the steep peaks of the Cumberland Mountains in northeastern Tennessee, at the border with Kentucky. The Cumberland range connects a terrain that spills across borders, disregarding this notion of separation drawn onto topographic images. The Cumberland range holds the coalfields of the southernmost part of West Virginia, then continues down to provide a jagged contour to the angled borderline between Kentucky and Virginia, before dipping down into Claiborne County, Tennessee. Grandad's girlfriend came along, and we went up, winding high, feeling the altitude change. Along the upper ridges of the mountains, clearings stretch out along Highway 90. Eventually our view of the horizon flattened out, but the clouds were now noticeably closer, or rather, we were noticeably closer to them. We stopped at a resort development that marked their territory with a big cross and took in a great view. We continued on and stopped at a little country store – the kind of place off the side of the road with snacks and friendly conversation, and a gravel driveway where nearby residents pull up on their four wheelers to let their kids pick out a treat.

We enter and strike up a conversation. Grandad asks after an uncle of his (his father had eight brothers) who is a sheriff somewhere around here. The store proprietors are a husband and wife, and while grandad chats with the man, I speak with the woman. She moved here in the 1970s, from Ohio, where her husband had traveled for work. He invited her back to spend a life in the beautiful Tennessee mountains, and she recalls the image he painted for her being much more attractive than life in Ohio. She was at first shocked to find no running water, a common feature of modern life she had grown up with, but it is just very difficult to pump water at this elevation. Eventually they got running water. It was very exciting when they got it. She had the chance to really appreciate something like that, something simple and taken for granted. If roads freeze up here, you can't get off the mountain. They have always had electricity, as long as she can remember, and before. She would never want to live down in the flatlands where she hears everyone is getting cancer from Oak Ridge.

Before we leave the country store, I see a free local publication, a folded piece of white paper with black printing, magazine size, with the appearance of a very small community newspaper. It is titled *What On Earth! Is Going On in the Clearfork Valley*. The masthead, in a black rectangle next to the title (which is also enclosed in a black rectangle with the "O" in "What On Earth" an image of the earth with the Americas centered) notes this is a "twice monthly publication by and for the citizens of the Clearfork Valley." Reporters include Marie Cirillo, Carol Judy, and Adam Gulley. The editor is Marie Cirillo, a former nun born in Brooklyn, NY, who moved here decades ago to help the people of Appalachia, especially the women. Cirillo, long committed to the



people of the area, continuously invited students over the years to stay with her and learn about life in the mountains, and to give back to this community. Cirillo hosted a teenaged Caroline Kennedy and her friend in 1973, when Cirillo received a grant from the Robert F. Kennedy Memorial Foundation for an oral history project on former coal miners (which is how Caroline learned about the project). Cirillo has since become a community leader at the center of several projects and initiatives, mostly humble and slow going, but which attract funding and keep her busy at work, serving the people of the community.

At a roadside turnout, I get out of the car to take in a grand view and breathe deeply of fresh air. The gravel under my shoes is all flecked with black. Grandad confirms it is all loose coal. Behind us, you can see a thin seam of coal exposed along with the other layers of less valuable dirt and stone, cut across to make room for the road. The coal-lined road leads us to an unexpected stop. I have no advance knowledge of any of these destinations. I realize Grandad had a kind of plan, to show me what I wouldn't know to find on my own. Amidst thickly grown roadside foliage, along the side of the two-lane highway, he points out a cinderblock foundation of a long-since decayed or destroyed house. Blocks rise up amongst trees, tall grass, weeds and flowers. Grandad quietly says that it looks like they're using it as a trash dump. Grandad tells me, and his girlfriend, that this is his childhood home, from when his father mined coal. There is a brick chimney still standing, but otherwise it is a cinderblock outline holding grass, trash, and old tires. A creek runs barely perceptible in the distance. Grandad asks us to imagine it before, when it was all a clearing, when the grass was cut, and the clearing stretched into the distance, where he played as a kid. They had animals, no power, a cellar to

preserve a hog through the winter. He tells a story of how he and a friend used to lay on top of coal train cars and hop off at the next stop, then walk home. Childhood joyrides. Except this one time the train didn't stop in town. It continued for miles into Jellico. By the time he contacted his parents that night, as a young boy, he knew he was in for serious disciplining over the exhilarating stunt. He mentions that in those days they were mining so much coal out of the mountain that the creek ran black. Grandad's girlfriend adds, "The environmental people wouldn't allow that today." Farther along on the trip, as grandad explains how he was too terrified of coal mining to return to the job site after his first attempt at the work, we pass a little strip mining operation. Nothing major left to do, as I'm told this mountain is mostly mined-out.

Following jobs, Papaw (my great-grandfather) eventually left this mountain and descended south toward LaFollette and Norris, and eventually found work at Oak Ridge as a laborer. My grandad attended Oak Ridge high school in the 1950s, its golden era of promise for the techno-scientific future, with the symbolic image of the atom emblazoned on all his school memorabilia. He eventually apprenticed as a glassblower, making custom instruments for senior Oak Ridge scientists, and art objects for himself and his family. His precision glassblowing work allowed him to start his own glass workshop, where he worked into the night after days at the plant. It is into this Oak Ridge that my father was born, into which he witnessed desegregation finally come to the federally-planned town, and from which his family moved to Kingston, eventually, to build a new house. All of this the landscape of change from which my father wanted to escape as soon as possible, to experience the world and life outside the hills. The dreams and

desires that built up in my grandfather (“a Hatmaker afraid of a coal mine!” – the men in his family had laughed at this) drove him into a scientific community where my father grew up fascinated with space exploration, logic, and computers. The transference of these dreams through the generations shaped my life before I knew it. The fascination with science, astrophysics, sci-fi, and the in-built critique of authority and bureaucracy that I grew up hearing about constantly all emerge out of this landscape. What worlds we begin to know are those into which we are unconsciously thrust.

Thinking back to the mural inside the Steam Plant, which from left to right shows men working – first a coal miner, then mechanical laborers, then scientists, and finally, rockets sent to space – I think about their gaze. The mechanical workers’ eyes are downcast and obscured. The scientists look straight ahead at their instruments. Yet the single coal miner faces up, looking up out of the depths of darkness with the light beam of his hardhat shining up and out. The desire to get out of the dark pit draws anonymous men into the light of scientific and technological apparatuses that bind their bodies to this particular vision of a life. And yet this ideological vision of connection obscures as much as it reveals. There are no women, for instance.

*“Whitey and Me”*

Go see a man named Paul Reagan, I am told by Brad, who helps me the whole time I’m in town. Paul is 90 years old and plays bluegrass on Tuesday nights at Bradbury Community Center, in Kingston, off Buttermilk Road. I ask Grandad, who plays piano and guitar and regularly attends music performances, to take me.

We walk into a former school turned into a community center focused on bluegrass music. Hand painted over the door, and again behind the stage inside, is the motto of the place: Pickin' and Grinnin'. In each of the former classrooms down a single hallway, musicians gather to play together and improvise. At the opposite end of the hallway, the center opens up into a large room with a stage for live performances. There is an open space in front of the stage for dancing, chairs along the back lined up in rows, and a concessions window where you can get a coke or popcorn or small snack treat. We find Mr. Reagan in a room filled with string instruments hung along all four walls. This room is devoted to his beautiful and impressive collection of these differently shaped instruments, which come from various music cultures around the world. A hand carved and painted "For Loan" sign tops a wooden rack along one wall with acoustic guitars, a banjo, a fiddle, and an upright bass. Musicians sit in fold-out or stackable chairs in a circle, and people freely join in or step out, ask to sing, or just sing along from where they sit. The man on upright bass wears a Tea Party hat and jeans. Across from him an acoustic guitar player wears tie-dye and a ponytail, and those sandal-sneakers that must be sold somewhere like REI, I imagine. Later, I see him get into a Prius out front with a Knox County license. Paul plays the mandolin and wears large plastic hearing aids. The younger men kindly shout out the song and key decisions toward him. He says little, and plays along, picking up the key and notes as the music floats along. A woman stands to sing and belts out powerful lyrics of Jesus and the Holy Spirit. The words to her song, she tells us, come to her as she goes along, when the Holy Spirit takes over and she delivers His message, totally unplanned and unwritten. She and her husband are visiting from

Alabama. She tells the audience to give her a word, any word, and she'll sing a song about it when the Holy Spirit enters her. Someone offers "water," which pleases her. She sings of the water and the blood of Jesus, oh Jesus.

Around this time, family members/campaigners for Julia Hurley, the local right-wing politician running in the upcoming election and rallying Tea Party support, enter the room. A teen girl introduced as Julia's daughter sings some old standards with the band. Her voice is pretty but faltering. We sing along to "Keep on the Sunny Side," a Carter family classic I'm sure is repeated each week in one of these rooms. The repeated mantra of the song, "keep on the sunny side, always on the sunny side, keep on the sunny side of life" only brings to mind its opposite, the darkness and depression, mentioned in the song's first verse. But the mantra prevails in repetition as we continue to remind ourselves, collectively in song, to stay in the light of life. The storm clouds that crush hope will pass, the song reminds. We will see the sun and the glory of God in it again, if we just remember to keep, always, on the sunny side of life. There is a song about doing "the best I can." What else can we do?

When the musicians decide to take a break, I talk to Mr. Reagan. He tells me about his time in China, "running the Japs out of Burma," and his later work as a nuclear physicist at Oak Ridge after the war. When he returned as a veteran, he attended Tennessee Tech University. His lifelong best friend, who he met in the military, Whitey, came up to join him. He was hired at X-10 in Oak Ridge, and later fired. He proudly showed me his achievement, of having an article published in a scientific journal. For this he received a letter of commendation, and asked the other guy, who fired him, to deliver

it to him. So he tells me. He has an original issue of the scientific journal in which he is published on hand in this room, a music room devoted to his life and work and instrument collection, where he is the revered elder musician-in-residence up to the time of his passing, which comes the year after our meeting. He hands me the May 1970 issue of *Nuclear Applications & Technology*, a journal of the American Nuclear Society. His article, "Irradiation Performance of Pyrolytic-Carbon- And Silicon-Carbide-Coated Fuel Particles," written by P.E. Reagan, R.E. Long, Jr., J. G. Morgan, and J. R. Coobs of Oak Ridge National Laboratory, is marked out with a green paperclip. I read the abstract:

The fission-gas release from pyrolytic-carbon-coated fuel particles was measured during irradiation, and the damage to the coating material and to the fuel was studied by postirradiation metallography. These particles were either uranium oxide, uranium carbide, or thorium-uranium carbide with a porous carbon primary coating. Particles coated with dense pyrolytic carbon and those coated with a combination of pyrolytic carbon and silicon carbide layers performed well during irradiation in the 1250 to 1400°C range, but both suffered severe internal reactions in the 1650 to 1700°C temperature range, even at low burnup. With one exception, all the experiments were conducted at a much higher burnup rate than would be encountered under normal power reactor conditions.

As I skim the article, Paul continues narrating his life story to me. He doesn't hear well, and so most of my questions go unanswered as he provides the monologue of his life on his own terms. He takes a poem, printed up with pictures for illustration, off the wall and brings it to where we sit. The poem, "Whitey and Me" is illustrated with photos of

Whitey and Paul, with a close-up image of their Fourteenth Air Force badge in between their portraits, the badge as the object-image uniting their faces. Written by Paul after Whitey's passing in 2006, the poem memorializes this relationship. It tells a narrative story of his life in partnership with his best friend. Printed in Arial, all caps, it reads:

IN ARMY BASIC TRAINING  
 A FRIENDSHIP LONG TO BE  
 GUITAR PICKER AND MANDOLIN PLAYER  
 THAT WAS WHITEY AND ME  
 WHITEY WAS LEWIS STANFORD  
 WHITE HAIR IN 1943  
 DRILL SERGEANT CALLED HIM WHITEY  
 AND HE DRILLED WHITEY AND ME  
 AT THE RADAR SCHOOL IN TEXAS  
 GUARD DUTY AND K P  
 G-2 CLEARED FOR SECRET  
 STUDIED WHITEY AND ME  
 TARGET DUTY ON THE RIFLE RANGE  
 BRUISED SHOULDERS BY SPRINGFIELD 03  
 SHARP-SHOOTER RATING ON CARBINE  
 RIFLEMEN WHITEY AND ME  
 TO THE STAGING AREA IN CALCUTTA  
 THE TROOP TRAIN ON THE G I P  
 BOB NEYLAND PROMOTED TO COLONEL  
 BUCK PRIVATES WHITEY AND ME  
 DOWN IN CENTRAL BURMA  
 THE JAPS BEGAN TO FLEE  
 THEY KNEW THEY HAD HAD IT  
 THEY HEARD ABOUT WHITEY AND ME  
 ON THE BURMA ROAD ACROSS THE "HUMP"  
 HERDING A SIX-BY-SIX GMC  
 A STRUGGLING AMUNITIONS CONVOY  
 THAT DOUBLE CLUTCHIN WHITEY AND ME  
 ON THE RUNWAY IN KUNMING CHINA  
 ATABRINE RICE AND TEA  
 TWO PROUD FLYING TIGERS  
 STAFF SERGEANTS WHITEY AND ME  
 TROOP CARRIER INTO SEATTLE  
 LIGHT RAIN AND TRAFFIC LIGHTS SEE  
 TEARS AND GOD BLESS AMERICA  
 HOME AGAIN WHITEY AND ME  
 ON THE G I BILL AT TENNESSEE TECH  
 THAT NUCLEAR PHYSICS DEGREE  
 ON THE RADIO STATION IN COOKEVILLE  
 BLUEGRASS BY WHITEY AND ME  
 AT THE NEW OAK RIDGE REACTOR  
 NEW WORLD FROM A TO Z  
 DODGED THE IRRADIATION BEAMS

SURVIVORS WHITEY AND ME  
 TUESDAYS AT THE CRACKER BARREL  
 THE WAITRESS EXPECTS TO SEE  
 US SIXTY FIVE YEARS LATER  
 THERE SITS WHITEY AND ME  
 GABRIEL BLOW YE THE BUGLE  
 PLATOON FALL ON CLOUD THREE  
 SAINT PETER PIN ON THE RIBBONS  
 A RIBBON FOR WHITEY AND ME?

The landscapes of war and nuclear power provide context for a life story whose refrain centers the love of best friends. The emotional bond that connected Paul and Whitey serves as the anchor to a narrative within which world war, nuclear physics, and avoiding cancer take place. In a “new world from A to Z,” the post-war world of nuclear power and irradiation, the permanency of old time music and a dear friend is what persists.

In moments like these, sitting in a room filled with music and love, intuition tells me something lies beyond preconceived critique. Learned, educated critique tells me here is a life shaped by national ideology, military infrastructure, major institutions devoted to science and technology, nuclear power, and the looming threat of cancer widespread in the region due to all of these legacies. This makes sense. It reads. It translates. It implies a familiar theory of power. But theories of power say little about love, especially non-reproductive male-male best friend love. Friends of sixty-five years eating at Cracker Barrel likely spoke a language that others cannot understand. At Bradbury, they communicated with instruments in a way that exceeds linguistics. They created music together, shared food, spent time, made a life.

*Dance*



On Friday night we go to the dance in Norris. Mostly a 65+ crowd gathers regularly to hear a band play on the stage and sing old time music like the “Tennessee Waltz.” I dance with my grandad, clumsily. I talk to a regular at our table. A barber his entire life, now retired, he wants me to know about his book manuscript. It’s a story of two friends growing up and facing the changes brought to the area with the Tennessee Valley Authority. He makes sure I get a chance to read it over, and later gave my grandad a copy to mail to me. For now, at the dance, we huddle in a back corner and one of the first things he does is gesture across the entire, full room of people and say that he can’t talk to any of them, really. He comes here regularly, but these are most likely all “gun nuts and Jesus freaks.” He cannot deal with them. A small local publisher turned down his manuscript after he revealed he is not a Christian, he tells me, incredulous. His book is all about the ways Southern ignorance and religion made some people resistant to the progress brought to the area. Yet it also reads as a cynical account of the attitude brought with TVA, that of educated elitism and snobbery. He tells me of his son, who got a PhD, and lived and died abroad in Germany as a teacher. He asks me to dance, but I’m too embarrassed at my lack of skill to take him up on the offer. Later, I see him dancing with his pretty girlfriend. After, I go with my group to Shoney’s for a late night meal.

The Shoney’s buffet provides breakfast food all day and night, so we load up on eggs, bacon, French toast sticks and syrup, fruit, cottage cheese, biscuits, and decaf coffee. Grandad, his girlfriend, and their extended group of friends all go out regularly and live more or less like smarter, more careful and conscientious teenagers. Life has returned to date nights, dances, and vacations. They live for their pleasures, for good

company and storytelling. I travel with them again to a music performance in Norris, and see that the landscape, though greatly altered, remains a familiar place that is used according to certain values – not those mandated and imposed ideologically, but those that grow up out of the materials lying around, and the people who remain connected here.

### *A Joke*

We are in the car, returning from Dollywood and the Appalachian-themed tourist district that is Pigeon Forge, Tennessee. Grandad mentions Yankees who come down to pay money to see things us dumb Southerners see every day for free. He transitions into a joke. It starts something like, “A man comes into town, lost, and goes into a store to ask for directions.” He asks, “how far is it to such-and-such?” The man behind the counter says, “I don’t know.” He asks again, about another destination, “how far is it to such-and-such?” And again, the man responds, “I don’t know.” So the lost man says, “You sure don’t know much, do ya?” To which the local man replies, “I may not know much, but I’m not lost.”

### *Drive*

Later I spend a lot more time alone, usually driving, taking it all in. I see the countryside stretching out all around from Kingston, all its connected tendrils of lakes, rivers, and relatives. I visit my grandmother’s grave, and my great-aunt Kay. Aunt Kay, my Aunt Crystal’s aunt and best friend, is buried next to her older sister Ella Sue (Susie),

my grandmother who died before I was born. Aunt Kay was supposed to help Aunt Crystal raise these two new girl babies, Aunt Crystal's granddaughters. But then Aunt Kay died one night while the girls were still babies and Aunt Crystal had to go it more or less alone. Many help, of course, but Aunt Kay had lived there, in the same house. That's a different kind of help. I come to live in this house because of a research project, and my Aunt Crystal becomes my best friend. Life is sustained here because of her love. This project is enabled. I don't help enough with the girls because I'm always gone, working, driving around, taking notes. Toward the end of my time in Tennessee, I travel across to the other side of the Appalachian range, into Boone, NC, to interview scientists. I drive back to Aunt Crystal's house at twilight alone, and she is there waiting up for me when I walk through the door near midnight.

On that drive I feel the cool mountain air and smell the sweet mixture of grass and trees and moss and ancient land. I take different highways to and from the other side of the mountains. Going east, I see rural shacks. Returning west, I pass large expensive tourist resorts. Everywhere the trees crowd up to the edges of mowed land. I sing loudly along with the radio and drive fast with no other cars in sight. When the car delivers me across to the other side, back to Tennessee, the windshield is blurred with annihilated insects, murdered by a rental car that carried my body through space and let me taste the fulfilling drips of freedom that hover in the damp, ephemeral air.

Soon enough I'm back on a major highway, in traffic. The feeling that had only begun to swell up and make me feel somehow more alive, better than usual, dissipates as the song on the radio changes from a pulsating beat with soaring vocals to a jangly

melancholy nighttime lament. Lanes merge together, billboards become more frequent, cars manifest their operators' aggression, and society emerges as a web of vehicles thrust out together to flow into destinations.

So often out here I don't have a destination and the feeling is distinct from the times of being bound to one. In such aimlessness, I arrive one afternoon at a huge TVA dam in Loudon County and see how ugly one can be. A sad park along the edge of the water holds only a cinderblock public outdoor bathroom covered in graffiti – the scrawled profane kind, not the art mural kind. The crumbling pathway through the park leads down to the water's edge above the dam where a gigantic sign, the size of a highway billboard but hung low along the shoreline, warns in huge red letters of the fatal danger of these waters. Old paint peels off the border and letters but the DANGER notification remains clear. The hazard of going into this part of the lake seems obvious, if not because of the water rushing over the hydroelectric dam, then because of the debris and oil and gas and random pollution hovering down from the marina up the way.

Luxury developments along the water's shoreline sit a few miles up river beckoning to retirees from here and afar to live an idyllic country life on the water, away from it all. To visualize the one river that ties this all together, the Tennessee, imagine a squiggling, wide river full of variations and changes but with dozens of dams controlling the levels at regular intervals. The many dams work together, raising and lowering the water, so that for the most part, for the lakefront people, it all stays the same, regular and controlled.

In the time of the ash flood at Kingston, the water was lowered, as planned and with the changing rainfall, for the winter months. It raises again each summer season. In the winter, some of the shoreline riverbed is revealed. Little shells fill the sand. I found out from the Appalachian state scientists that TVA maintains controlled hatcheries for fish and river mussels, which eat from the sediment while also providing food to certain birds. The sediment around Kingston contains all these pollutants from Oak Ridge and Kingston Steam Plant, however the animal life affected did not originate as a populous ecosystem that pre-dates the modern energy industry. The ecosystem is a modern one, organized through planning. It is not that the waste spilled out into a pre-modern, natural, primordial, unspoiled nature. It spilled out into a water whose level is regulated and whose bird, fish, microbe, and plant species were planned, organized, populated to specific levels, grown and spread around for certain purposes, and monitored regularly. The ecosystem and the infrastructure were planned together. The plants and animals serve the power system, helping clean some water here, or surviving the temperature changes of power plant effluent there. Outside of these planned species-infrastructure relationships, beyond the domestication of the river, life spins out, beyond this enormous attempt at control.

*“It’s Not Everything”/“I’ve Tried”*

I tell my Aunt Crystal that the landscape seems dominated by TVA and Oak Ridge. I tell her everything is connected to these two, that all life here seems to rely on these massive institutions of power. I tell her that all I see are billboards for TVA, Y-12,

ORNL, Enrichment federal credit unions, signs marking their territory, people employed by them or retired from them or married to someone who does nuclear waste clean up or whose mom spent her whole life in Oak Ridge or who knows someone having all their cancer treatments paid for by the U.S. government. And she says, “Not everything. It’s not everything.” I listen. I rethink my presumptions. She is right; I’ve built it up too much in my mind. I need to break away, see it differently, remember what is outside of structure, spreading out among the tactics of everyday life.<sup>208</sup>

Sometime later we are on the back porch smoking in the hot afternoon sun. Inside, the local evening news just said something ignorant and now we’re talking. Seemingly out of nowhere, my aunt says to me, with an empathetic and determined tone of voice, “I’ve tried.” She amends, “In my own small town way, I’ve tried.”

I don’t know what to say. I write it down and think about it on and off for a year. I know she is at the center of this story, but tact tells me to exclude it. It doesn’t fit. It isn’t part of this. It doesn’t make sense to talk about your beloved aunt, the strongest woman you know whose life inspires this work. Not here, not in this category of inquiry. Her

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<sup>208</sup> Certeau, in his chapter on “Making Do,” describes a distinction between tactics and strategies in a social world where there is “no longer an elsewhere” (40). Strategies are described as the rationalizations of a management perspective. Strategies always seek to distinguish agency from “environment.” Such is the “typical attitude of modern science, politics, and military strategy” (36). Bound to strategies are functional orderings of place and time, visibility, and “the *power of knowledge*” to “transform the uncertainties of history into readable spaces” (36-37). Tactics, on the other hand, take place in the absence of power and in “the space of the other.” Tactics take place not on an “outside,” but within an imposed terrain, ordered by power. They are the unpredictable uses of things that allow us to trace out alternative interests and desires. Certeau explains of tactics, “Statistics can tell us virtually nothing about the currents in this sea theoretically governed by the institutional frameworks that it in fact gradually erodes and displaces” (34). *The Practice of Everyday Life*, 29-42.

land touches “TVA’s lake,” as a handyman who came to the house one day called it, and she’s supposed to get their permission to do anything along its edges. But I can tell she means it when she tells me it’s not everything. I begin to try to see differently, because I’ve just been told that there are other ways to see. I try.

There is a funeral for a friend’s mom that Aunt Crystal attends while I’m there, one of a handful of funerals that I hear about during my stay. The talk when she returns home is so full of life, naming everyone who was there, all the people she got to see and talk to. Everyone in town was there. Our family’s doctor, who is also most everyone in town’s doctor, high school friends, divorced single men. The daycare provider “who had babysat everybody in the room.” The women talked about needing to go to more of these things, there are so many tall handsome men, haha. The community rallied and there were agreements made to keep in touch better, to get together more. Aunt Crystal loves community. She does not think socialism is a bad word, or a bad idea.

Aunt Crystal has worked for over 20 years at Adult Community Services, a small, severely underfunded agency that provides job and life skills training and assistance to people with mental disabilities. Many of her clients have both developmental disabilities and mental illnesses. They are family and she pours love into her work, caring for others in need. I think this is a big part of how she means she has tried. These are the people she knows continuously get left out of the story when I say that TVA and Oak Ridge are everything. Aunt Crystal could care less about trying to assimilate into a constricting world of white male moneyed normativity. Her spirit has been with the people, not the

social climbers, but the vulnerable, and with animals and plants and those who are overlooked and in need.

While I was there, one of her clients was hospitalized and could have received a specific life-saving treatment from Vanderbilt, a better equipped hospital, but this was determined to be too expensive to bother with for a 70-year-old woman with disabilities on social services, so she was let die. Aunt Crystal was frustrated, sad, and angry. “She was only 70 years old. She showed up for work every day,” was all she could say. One day a woman is in the hospital, the local one, where they can’t treat her. She is told they can treat her at a better hospital. Someone in some government agency decides she can just die instead, and we spend an evening lamenting this crude calculation. These are the frustrations of my aunt’s work. She hasn’t seen a raise since 2009; she makes poverty wages as a middle-aged single woman raising her two young grandchildren, often helping out with a third grandchild; her own two daughters, my cousins, have struggled to say the least. But her devotion, to her clients and to family, is palpable. Anyone she loves, client family or friend, is invited to vacation in Florida. Her home is a place where every holiday and special occasion is celebrated with a big fantastic meal, drinks, laughter, plenty of festive decorations, and music. She’s never had much but she also has so much more than is quantifiable. She’s tried.

This is just an example of a life here. There are countless others, of course. This isn’t labor history or women’s history or history at all. These are glimpses of the ephemera of life. Like a shouting match echoing through the alleyway behind my apartment, right this moment, these traces of life get left out unless we include them,



unless we take them into consideration. The ways they matter don't need to always make perfect sense – they don't. Sense making is for the planners and organizers, for those determined to take something and transform it into something else, something better than this because they think that this is not good enough.

These are the gray matters that erupt unexpectedly on the margins of institutions and infrastructure. These are the matters that remain hidden, that evade history and knowledge, and flow out creating new ecologies of life. These are the ways I was changed in research, when I moved outside of the institution to just live here and made new bonds of love and trust and support with my own relatives, from whom I had long been estranged. Family became familiar, and good, after seeming bad for so long. Life grew out of these encounters under the smokestacks, along the lake. The river water touched my legs and I felt awash in the beauty that spreads out along the contours of earth and water, where the sky is still blue even against the smokestacks, and where I learned how to rethink my assumptions about how it all fit together.

Life finds a way is a cliché because of its conveyance of truth. Life takes up space and causes change whether perceptible to us or not, and so does death. But the light always returns even to the places of death and things persist in living among the ruins, all around. Even the ruined gets reincorporated, recycled, so that the persistence of life pushes on. The scale of the structures giving life its peculiar shape and contour are at the scale of the dreams. Some men tried, in their big government way, to show how they care. Wanting to help, dreaming big, feeling for life, in many ways fuel the desire that led to all this power and waste.

That's why the ash return feels uncanny, and has to be swept aside, undisclosed. It is the return of the familiar, the homely, and the domesticated (what is more familiar than electric power?) in monstrous form. It is the hidden ghost that haunts dreams of purity in a place where life has never been tidy and neat. It cannot be recognized except as an apparition and a mistake, because it is the uncanny counterpart to the domestic arrangements in which we take part, the flows of energy from which we benefit. It is not an oversight, or even an unanticipated consequence. It could always be anticipated, as the death that makes live. It is felt in the fear of annihilation at the nuclear weapons complex, in the fear of cancer, in the fear of running out of power, in the anxiety over resources. It is a known unknown in the truest sense. It is the un-thought-of that we know must linger somewhere, elsewhere. Here, in the elsewhere, life is just like anywhere else. Messy, unaccounted-for, complex, persistent, surprising, vibrant, tragic, pleasurable. Here, in a place where cemeteries mark every road, death's daily presence is openly discussed, laughed about. The deep sarcasm that runs through local ways of talking always acknowledges the pending doom we all face. It acknowledges the absurdity of the arrangements. If life is good, daily tasks are finished to make room for such jokes and drinking and smoking on the porch and listening to music while telling stories about love and loss. Plans fall away.

Illustrations



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6: Author with scrubber



Figure 7: New gypsum ponds for scrubber waste



Figure 8



Figure 9





Figure 10



Figure 11



Figure 12



Figure 13



Figure 14



Figure 15



Figure 16



Figure 17



Figure 18, a familiar scene in Oak Ridge



Figure 19, roadside state historical marker off Gallaher Rd, with rectangular shape of K-25 plant façade in the background.



Figure 20



Figure 21



Figure 22

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