"Cyclonic Capitalist Development" in Uranium City, Saskatchewan: A Counter-visual Analysis

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Abstract:

This paper reflects on what happens with "purpose-built towns" and their residents when industries withdraw, leaving behind economic strain and environmental contamination. It also examines the challenges encountered in studying such issues, drawing on observations, interviews, and photographs taken at decommissioned war industry sites, including Nitro (West Virginia), Mercury (Nevada), and Uranium City (Saskatchewan), the focus of this paper. Engaging with the literature on the limits of visual methods in justice research, this paper argues that there is something about place that eludes visual methods, especially photography. This aspect of this paper's argument is consistent with counter-visual analysis, which is used to examine remnants of "cyclonic capitalist development" and the marred landscape and lives left behind in Uranium City. This paper concludes by reflecting on the relationship between visual studies and debates about social and environmental justice.

Introduction

This paper reflects on what happens with "purpose-built towns" and their residents when industries withdraw, leaving behind economic strain and environmental contamination. It also examines the challenges encountered in studying such issues, drawing on fieldwork conducted in Nitro (West Virginia), Mercury (Nevada), and Uranium City (Saskatchewan).

Mercury, Nevada, was established as a town in the 1950s to support nuclear weapons research at the Nevada Test Site. Nuclear and other weapons were tested during the Cold War, and families of military and scientific personnel lived in Mercury (see Anaïs and Walby

2017). Weapons testing ceased in 1992. Nitro, West Virginia, was created as the company town to Explosives Plant C, which was created shortly before WWI ended (see Walby and Lippert 2015). The land that came to be called "Nitro," located in Kanawha Valley, had been surveyed as an industry site long before WWI. After WWI, many chemical companies created factories in what is now known derisively as "Chemical Valley." Concerns and lawsuits about dioxin contamination have become prevalent. Finally, Uranium City, Saskatchewan, is a purpose-built town located in northern Saskatchewan, a hundred kilometres from the Northwest Territories, and a couple dozen kilometres from Lake Athabasca. The region is the traditional territory of the Chipewyan Dene people. The town was formed when gold was discovered in 1934. Uranium mining began near Beaverlodge Lake in the area in 1946, although awareness of radioactive minerals dates to the 1930s. Uranium mining occurred between 1953 and 1980. Erecting the town took massive public expenditures from federal and provincial governments. Over the course of thirty-five years, hundreds of thousands of tonnes of uranium were mined, much of it destined for US atomic weapons. Mine closures in 1981 led to a sudden reduction of economic opportunity, and threatened Uranium City with "the imminent danger of becoming a ghost town" (Dougall 1982: 63).

While this paper focuses on the research I conducted in Uranium City and the methodological issues and challenges I faced, the larger project is oriented around three issues or questions. First, to understand how the towns were developed, and how they have been reorganized by deindustrialization, I explored the historical contexts in which these urban areas emerged. Using archival research, I examined the creation of these sites and how planning has shaped the physical design of the towns. Second, I sought to investigate how residents have coped with industrial withdrawal and contamination. Based on interviews with local residents, I asked how industrial withdrawal and contamination have impacted self, family, community, leisure, and work. Third, I examined the revitalization and diversification policies that municipal policymakers enact to help purpose-built, post-industrial urban areas and people within them

cope. For all three sites, I used visual methods, which as this paper describes, raise their own set of issues.

In this paper, I explore the possibilities and limits of visual methods, with specific focus on data gathered from Uranium City. This paper reflects on the challenges of documenting injustices using visual methods, with purpose-built towns (broadly) and Uranium City (specifically) as my case study. Contributing to literature on the limits of visual methods in justice research (e.g., Carr et al. 2015; Walby and Piché 2016), this paper is organized in four parts. First, I review some of the literature on "purpose-built towns" as places of industrial contamination and injustice. Second, I summarize the research methods and design for the larger study. Third, I offer a "counter-visual analysis" of "cyclonic capitalist development" (Keeling 2010) in Uranium City, raising questions about the epistemological status of photographs used in social inquiry (also see Liegl and Schindler 2013). "Counter-visual analysis" focuses on what once was in a place, or what remains in a place that can no longer be seen, which ultimately challenges the idea of photographs as reliable or trustworthy social scientific data. I argue that these photographs of towns, cities and landscapes do not produce linear, trustworthy accounts of contamination, or harms to people and the environment. Visual exposures of industrial destruction of the environment can draw attention to injustice. But as I will argue, visuals can introduce a social distance between researchers, audiences, and places of study—a kind of injustice itself. Finally, I reflect on the relationship between visual studies and debates about social and environmental justice.

Industrial Withdrawal and Contamination

Kai Erikson's (1976) account of the Buffalo Creek flood is a classic social science work on how disasters affect community. When an industrial reservoir burst open in 1972, it released a torrent of mine waste that flooded small towns full of miners and their families (also see Stern 1976). Erikson's research advanced the sociology of disaster through his approach to researching collective trauma. He interviewed survivors and town officials to understand the impact of

the flash flood. Erikson (1976: 255) suggests that the social and economic strain caused by collective trauma is not only the result of such sudden disasters (e.g., earthquakes) but that both acute events and chronic conditions can generate a decline in community and social bonds. Collective trauma can thus emerge over many years from industrial withdrawal and lingering contamination. Erikson documented some of the destruction using photographs, but he used them minimally and only in a realist manner. Erikson did not question how visual methods are used.

Building on these insights, Besser and colleagues (2008) note that industrial withdrawal and contamination result in what they call "slow motion shocks" causing community degradation, as well as economic strain. They suggest that several small shocks such as factory closure and environmental contamination can be more destructive than one large shock, and they recommend that policymakers survey how industrial withdrawal and contamination impact towns and erode community ties. Some literature on industrial contamination is framed in terms of how industrial sites as sources of contamination are established and the resulting inequalities (Grant et al. 2010).

Auyero and Swistun (2007, 2008, 2009) have advanced the study of environmental contamination by using the term "toxic uncertainty" to explore how people make sense of industrial withdrawal and contamination. The authors conducted interviews in Flammable, Argentina, a town contaminated by a chemical plant. Auyero and Swistun (2008) explore how remaining residents attempt to make sense of contamination. They argue that the multiple sources of knowledge about contamination make it difficult for communities to agree about levels of contamination or how to respond through the policies of municipal government, which was the case in Nitro and Uranium City as well (there was a reluctance to blame the government and the companies for toxicity in the local environment). Generally, in these contributions there is little focus on visual methods or the relationship between the visual, justice, and place.

Post-industrialism, Purpose-built Cities, and Policy Responses

Industry towns played a key role in Canadian state formation. Their decline contributed to the urbanization of Canada in the mid-twentieth century (Bray and Thomson 1992; Lucas 1971). Jackson and Illsley (2006) review town planning for remote communities. They assess how the Instant Towns Policy in Canadian provinces expedited rapid development to meet industry needs but did not require economic or environmental sustainability planning. Uranium City was a product of the Government of Saskatchewan Instant Towns Policy. Due to the 1981 recession, diversification became a focus in single-industry towns. The social and economic wellbeing of residents in remote areas was reduced by unemployment (O'Hagan and Cecil 2007; Clemenson 1992).

Martinez-Fernandez and colleagues (2012) refer to such urban areas as "shrinking mining cities" characterized by declining population and decreased economic opportunities. The literature that has examined deindustrialization in remote purpose-built urban areas focuses on labour migration, health, and industry diversification (Halseth and Hanlon 2005; Beauregard 2003; Bradbury and St. Martin 1983; Krahn et al. 1981) and tends to be policy oriented. Revitalization can include the development of a knowledge economy sector, the adoption of collective forms of governance, and the resistance of single-industry domination of the labour market (Martinez-Fernandez et al. 2012; Allen 2007; Barnes et al. 1999). Bubinas (2011), for example, has studied farmers' markets as a way municipal policymakers try to attract people to post-industrial towns. Aguiar and colleagues (2005) have explored revitalization in Kelowna, BC, arguing that new real estate markets fail to address the trauma experienced by working-class sectors. However, these contributions do not tend to examine issues of social and environmental justice.

As a result of the revitalization efforts of policymakers, people have started to migrate to such towns. Hoey (2005) has examined how residents of small towns who moved there to escape cities describe the transition. Hoey (2005) refers to these residents as "lifestyle

migrants," analyzing their relocation narratives to explore how people create a sense of self when committing to a major life change. This return has happened in Uranium City in a small way, and purpose-built towns have indeed been pitched as alternatives to the fast pace of major cities (Osborn and Whittich 1970). What is called "toxic tourism" (Yankovska and Hannam 2014; Stone 2013; Goatcher and Brunsden 2011; Pezzullo 2009) in nuclear and other polluted sites is on the rise too.

During interviews, I found that most people were more attached to these contaminated places than I had anticipated. There were no singular answers about what the future holds in these places, and what justice might look like. There is no linear story to tell about collective trauma. Correspondingly, as the conclusion explores, there is no simple narrative to share about justice at these sites either. My purpose below is to show how the visual aspect of the research similarly did not produce simple depictions of injustice or justice, and to demonstrate how the photographic data are best conceptualized through counter-visual analysis. Such a position is critical of photography as a research method and as a way of trying to visualize justice and place.

Design and Methodology

The sampling criterion for site selection includes claims about contamination, the connection to war production, and the presence of municipal officials responsible for urban policymaking. The site selection has also been informed by awareness of these cases and prior knowledge of the existence of datasets at the listed archives. Not one of the sites has been studied in the social science literature on disasters or contamination (see Gunter, Aronoff and Joel 1999; Kroll-Smith, Couch and Marshall 1997; Greenberg and Schneider 1996; Kroll-Smith 1995; Erikson 1994; Aronoff and Gunter 1992a; Aronoff and Gunter 1992b; Edelstein 1988; Couch and Kroll-Smith 1985).

Archival research was conducted in Ottawa at the National Library and Archives and in Washington, D.C., at the National Archives. These data included planning documents and early town records. The rationale for this phase is that urban ethnographic research risks becoming a collection of anecdotes about the present if it is not grounded by archival inquiry (Katz 2010; Short Jr. and Hughes 2009). Interviews with respondents in the present cannot be fully analyzed without grasping the histories of the places of everyday life.

Semi-structured interviews with residents were conducted. The purpose was to explore how residents talk about these towns and their lives in the face of industrial withdrawal and contamination, and how residents make sense of their lives and respond to the effects of post-industrialism. Interviews included questions about how industrial withdrawal and contamination has impacted family, community, leisure, work, and the sense of self that respondents have. Semi-structured interviews and observations with local policymakers were also conducted to investigate how these towns respond to industrial withdrawal and contamination. These interviews explored the strategies of local policymakers for surviving in the face of collective trauma.

Many of the interviews for this project occurred while riding in trucks, or walking around these sites and towns. I would use the place as a cue during the interviews in ways that made it easier for the interviewees to tell stories about these towns and what happened in them years prior (see De Leon and Cohen 2005 on this walking probe technique, not to be confused with photo-elicitation [Natali 2016; Harper 2002]). The imagery observed at the sites was documented using field notes and photography to provide additional materials for analysis, which is the key focus of the counter-visual analysis below. Importantly, I did not have ethics clearance to photograph people (I simply had not sought it, so I did not take pictures of their bodies or faces), and thus my photographs are of landscapes, buildings, and discarded implements in the places I observed.

Toward a Counter-visual Analysis

Place is not simply a thing (Peck and Tickell 2002) or a geometric zone. It is a site where meaning is made and where life happens. The central claim below is that there is something about place that eludes the visual, especially photography, which should be of concern to social scientists using visual methods. Pink (2014) suggest photographs used as part of visual ethnography are marked by a temporal disjuncture; photographs refer to the immediate or distant past that the viewer cannot access. The disjuncture, however, is not only temporal. There are material elements of place that do not appear in photographs, which cannot be understood from such visual texts. Schembri and Boyle (2013) add that researchers should not fetishize the visual in performing visual methods. This is not the least because neither place nor space can be fully represented using photos. Margolis (1998: 6) likewise argues "photographic images constitute an operationalized language that is incapable of expressing alienation or negation, potential, irrationality, alternative meanings, and dimensions of time." Such claims suggest a methodological shift is required in visual methods, away from realist accounts toward a more interpretive, modest framework.

Acknowledging these limits, Schept's (2014) method of counter-visual analysis calls for researchers to examine what is communicated through the invisible, as opposed to focusing on readily apparent narratives. What this means is that archival and historical work is needed to tell stories about what is not in visual data and explain why it is not there. Schept (2014) argues pictures should be used to see differently, to look for structures of power that shape place, ghosts of past regimes and forms of control, and murderous forms of pollution and waste that elude the visual. Adopting the counter-visual approach, I focus on three aspects of the place that photographs obscure. These elements of place have been derived from examinations and analysis of these data and photographs. Three elements of place that are not visible in photography are indigenous displacement and death, poison and contamination, as well as struggle and survival.

Indigenous Displacement and Death

Uranium City is situated in the territory of the Chipewyan Dene people. The Chipewyan Dene people historically followed caribou migration through the area (Wiles, McEwen and Sader 1999: 109). A migratory caribou trail remained a few kilometres from Uranium City until the 1950s when frenetic development commenced (see Beckett n.d.). Gold mining and other resource extraction brought white settlers to the region. Rapid population expansion in Uranium City occurred in the late 1950s. Chipewyan Dene and Sahtu Dene indigenous persons have been subjected to radiation and chemical exposure because of uranium mining in Canada's North (Keeling and Sandlos 2009). Construction of Uranium City even made *The New York Times* (Hillaby 1954: n.p.), and the demeaning approach to indigenous people was as evident on the newspaper pages as in the new boomtown: "Local Indian labor is practically without value. The Chipewyans are prepared to work hard until they are paid enough to buy a few traps, then they quit." The exposure, the pollution, the contamination, and lack of remediation are consistent with what has been referred to as environmental racism—the systematic placement of toxic hazards and contamination near already marginalized, low-income or minority communities (see Westra and Wenz 1995).

Located on Lake Athabasca, Goldfields was the area's original town site. Uranium was originally found at Goldfields in 1934. Gold mining at the mine ceased during World War II. With investment in uranium several dozen kilometres north, many of the Goldfields and Box Mine buildings were floated across Beaverlodge Lake to what would become Uranium City. Left behind at Box Mine are mine implements, gold-coloured arsenic sand dunes, and the only remaining headstock in the region. The place names themselves represent the settler inclination to overtake, to colonize, to control the natural world, all spinoffs of the cyclone of capitalist development.

Arsenic was used to separate gold from rock. Arsenic was later used to separate radium and uranium from pitchblende ore. This photograph certainly does draw attention to the arsenic in the ground at Goldfields left behind by gold mining. It does not evoke the massive amounts of labour that went into the creation of the site in the early twentieth century, however, or the sense of fear I experienced when traversing the arsenic pit. The local who kindly took me several hours by truck to see Goldfields advised we should not get out or open the doors while near the arsenic dune. More to the point, the local, who was indigenous, noted that indigenous persons had thought of the top of this small mountain as a sacred place (perhaps due to its panoramic view of the entire region including the

massive Lake Athabasca and the sand dunes across the lake). It is now mostly inaccessible except to the brave few with trucks or all-terrain vehicles that can handle the arduous landscape. The photograph captures the eerie juxtaposition of toxic yellow contamination and surrounding lush green foliage. But the picture fails to represent what was lost in this place when it became an industrial zone, the erasure of it as a ceremonial place, the awe of the view, and the sting of its seizure by settler miners.

The idea of "cyclonic capitalist development" (Keeling 2010) refers to the quick, cheap settler determination to mine the area, which irrevocably changed the character of the place before its abandonment, with no veneration for indigenous knowledge and use of the place. The indigenous ceremonial places and burial sites near Goldfields and elsewhere in the region are not marked. Indigenous peoples benefited little if at all from the circulation and accumulation of capital by gold and uranium mining companies including Crown corporations (Keeling and Sandlos 2009: 122). In this way, uranium development was "a force for northern colonization" (Keeling 2010: 243; also see Harding 2007) that has contributed to what Kuletz (1998) and Endres (2009) call nuclear colonialism.

The sense of displacement, loss, and death is much more evocatively expressed in Marie Clements' 2003 play *Burning Vision*. The play explores the lies told to Dene workers about the safety of uranium and radium. The workers, most of whom did not speak English, were hired to carry pitchblende ore out of mines and transport it to other locations. They were not given much in the way of protective equipment. During the 1950s, "many Dene slept on the ore, ate fish from water contaminated by radioactive tailings and breathed radioactive dust while on barges, docks and portages" (Nikiforuk 1998: A1). Cancer rates among these workers skyrocketed. As one character in *Burning Vision* puts it, "the real monster is in the light of these discoveries" (Clements 2003: 29).

Poison and Contamination

A radioactive tailings pond—visible from space—that has leeched into Nero Lake is being covered with soil. The site hosted a mill for Lorado and Cinch mines, just two of the thirty-seven abandoned uranium mines in the area. Some 545,000 tonnes of uranium were processed at the mill during the 1950s, much of which was destined for US atomic weapons. Residents of Uranium City recall riding bikes around the pond in the sixties and seventies. As one person who grew up in Uranium City noted, "I remember the odd time Eldorado tailings, people would say it was running into the creeks and the lakes again, but I never heard no big commotion about the environment." The photograph was taken surreptitiously out the window of a truck. At this point, the site manager was driving me around the former mill site. This was as close to the leeching area as we were going to get. We could not get out of the vehicle. And I did not want to ask for permission or draw attention to the fact that I needed a photograph from this location.

Between 1948 and 1953, over 140 mining companies operated in the region around Uranium City. Eldorado, Gunnar, and Lorado are the names of some of the largest mine and mill sites in the region. All of the mills produced a mustard-coloured powder called uranium oxide precipitate, more colloquially known as yellow cake. As Keeling (2011) notes, signs in English and Dene warning of radiation,

asbestos, and other forms of poison are scattered throughout the region. Nero Lake in particular no longer resembled a lake. It looked more like a pit of sulfur and mustard. In 1991, the Canadian and Saskatchewan governments announced a joint environmental assessment initiative. Then in 2008, a coordinated effort (called Project CLEANS), with a budget nearing $100 million involving multiple levels of government, private companies, and locals, was undertaken to address widespread contamination in the area. Most of the people I met and who were staying in the residences in Uranium City were employed cleaning up the mine sites. But cleaning up uranium sites is dirty work. The town, the mines, and the road are all toxic products of the "cyclonic capitalist development" (Keeling 2010) of Uranium City and the many nearby mining and uranium production sites. This development in the 1950s was "stimulated by the enormous demand for uranium of the United States Atomic Energy Commission" (Keeling 2010: 233), which was even embraced by the left-leaning Co-operative Commonwealth Federation (CCF) provincial government of Saskatchewan (also see Harding 2007). Local lakes, marshes, swamps, and sloughs were used to dispose mining and milling waste, the generational effects of which are just beginning to be understood. The mines and mills were abandoned virtually overnight (Prebble and Coxworth 2013; Goulet 1997), and the radioactive waste at these sites sat exposed until 2013–2014 when remediation began to take place. The photograph cannot capture the biological and ecological effects that the mines and mills will have on people, animals, plants, soil, and water in the region and beyond. Meanwhile, as this picture shows, the oddly yellow and purple uranium sludge pit, which is visible from space on Google Earth, is now being covered over with a few inches of gravel and sand.

Images of human suffering can certainly draw attention to pain and injustice (Reinhardt 2012). Landscape images can visualize toxic sites and could create public awareness of them. At the same time, these photographs cannot express the scope and sense of toxic radiation that these mines and milling sites have generated. The lake

pictured below, for example, looks like it could be a vacation destination. Yet it is contaminated with uranium and selenium from multiple uranium mine and mill runoffs. Connected watersheds are contaminated as well. Throughout the 1950s–1970s, uranium waste was simply deposited directly into the lakes. In other words, early operations involved "uncontrolled hydraulic discharge of tailings to lakes or topographic depressions" (Clifton, Barsi and Misfeldt 2002: 305). At Gunnar mine and mill, tailings were pumped over a hill and into Blair Lake. When it filled up, a channel was blasted, and the materials flowed out through another watershed into Lake Athabasca (Ross and Hovdebo 1995). At Lorado, materials were dumped into Nero Lake. Lorado was only really active between 1956 and 1961. At Eldorado, materials were pumped into Marie and Fookes Lakes but dumped down into Beaverlodge Lake (see below). The photographs fail to represent the molecular contamination that has permeated the water, the soil, the animals, and the people. Of course, the uranium mines were part of a global political economy aimed toward providing uranium for nuclear weapons and energy in the United States (Ungar 1992; Allardice and Trapnell 1974; LeBourdais 1959). The contamination extends to these other nodes in the network of cyclonic capitalist development where nuclear weapons were produced and tested, and where nuclear fuel rods blazed, were spent, and then buried or spilled out (Anaïs and Walby 2017). But the bodies of workers and locals were contaminated too. Exposure to radiation from uranium is now known to create a greatly increased risk for Hodgkin Lymphoma (Blood Weekly 2010) among other health problems.

South-facing view of Beaverlodge Lake. Also called the "Eldorado Beaverlodge" site, where up to twelve open pit mines operated. At one point, two thousand tonnes of uranium were mined and milled here each day. This image is from atop a former open-pit uranium mine. English and Dene signs at the site entrance now warn of radioactivity and cesium in the soil. Signs near the lake warn of cesium-laced fish. Companies still try to profit from this destruction. As a local put it, "There's been a hope for twenty years with that Goldfields property, but it's big companies that usually get it and use it for stock promotion. Kind of 'hey we're looking at re-establishing that mine' and then their stock goes up and they make a bunch of money on it and it's traded to four or five different companies now. So they're mining people's pockets now, and they're good at it too."

Struggle and Survival

People have struggled against these toxic state and capitalist endeavours. There are lawsuits. There are blockades. There are protests. There were work stoppages by people in the mines and the mills (United Steelworkers of America, Local 913 v. Eldorado Nuclear Limited 1975). There are claims to the land. There are calls for moratoriums and remediation, including the Dene Declaration (Keeling and Sandlos 2009), which articulated a deep political ecological critique of the mining industry. Most people involved in these actions are not situated in Uranium City today, as the mills and the mines in Uranium City and the surrounding area are long closed

down. These are all forms of struggle and resistance to cyclonic capitalist development, many led by Dene peoples in the region. They struggle in a political and legal sense, but also on a daily basis. Uranium City was a large urban site, complete with movie theatres, department stores, hockey rinks, hotels, banks, and more (Dougall 1982). It was such a major happening in North America that Prince Philip visited Uranium City on a royal tour in 1959. The town had many amenities that were lacking even in much larger Canadian urban centres at the time. Between 1975 and 1980, the provincial and federal governments actually pumped $115 million more into the city to counteract economic stagnation, unaware of what was about to happen (Beck 1995: 13). This was despite the fact that most uranium mining shifted to Rabbit Lake, Cluff Lake, and Key Lake, where mining was cheaper and produced more valuable ore (Clifton, Barsi and Misfeldt 2002: 305). Uranium City went into major shock during the 1981–1982 recession, as the cyclone of capitalist development shifted elsewhere. Hundreds departed as soon as the ice road to Fort McMurray formed the following winter.

Yet people remain: the sisters who operate the only grocery store in town, and who press Uranium City T-shirts for the odd tourist who stumbles in; the family that runs the gas station, which appeared to be the de facto coffee shop and city hall in town too; and one local who now combs through the school and other crumbling buildings looking for copper pipes and fittings to sell in southern Saskatchewan. They go on making meaning with one another.

West-facing view of Uranium Road/Highway 962, which facilitates access to the airport but also most mine sites in the area. At one point Uranium City hosted hockey and baseball teams that travelled for league play. Uranium City had theatres, bars, The Bay, a pool hall, and hotels, as well as an international airport. Now there is one small grocery store with mostly canned goods, and one service garage open half the year. As one local notes, "the one that really affected us was the Eldorado [closure] as it had the most employment. Probably 100 people worked for Eldorado and then indirect trade probably another 1000. So the town went from 3500 people in one year to probably 1000 the next year and down to 500 third year and dwindled down ever since."

A home in one of the residential divisions of Uranium City, crumbling under its own weight. Before the mines closed in 1982, Uranium City had 5,500 residents and hosted thousands of international uranium industry workers. A thousand jobs were lost in 1982 alone. Perhaps ninety now live in Uranium City—the infrastructure of the once bustling town is grown over with bush. These two photographs were taken at the same time as all of the others, but I chose to show them in black and white to create a temporal juxtaposition. In black and white, the photographs seem as if they are from decades ago, which makes the recent, rapid deterioration they depict all the more shocking.

Named after a nuclear reactor, the high school was built two years before closure of the mines. Trees cover the grounds, inside and out.

I took photographs of these broken-down homes and places of daily life. I am not sure if these photos really can convey the overall sense of abandonment and isolation. Do the pictures really reveal what it takes to keep on living in these conditions? The generations, the memories, the families, the sounds, the vibrancy, the excitement, and the loss. There was one site that I did not photograph: the cemetery. The cemetery in Uranium City is a particularly touching, sensitive place for locals and the Uranium City diaspora, who are numerous. In fact, there is a group called Friends of Uranium City that meets in southern Saskatchewan every two years. They draw numbers in the hundreds. The people who once lived in Uranium City sometimes return to visit the graves of loved ones left behind. The clearing of the cemetery is fenced off from the highway. Thick forest lines the other sides. Unlike the rest of what is left of the town, which is being swallowed up by the earth, the cemetery is cleared, maintained, and

manicured. Obviously, some of those buried there had died from radiation exposure in mines, in mills, lakes and creeks and marshes, roads, and water. I did not have the mettle to ask about causes of death, but the cemetery was sizable. I wanted to be respectful. There were unmarked graves in the cemetery too. These were the graves of those who had committed suicide in Uranium City. Many in Uranium City had come from across the globe. Some were not prepared for the intense isolation that crept up on them in Canada's North. The arctic winters are long with darkness. It was my decision to forego photographing these burial plots. The guide was particularly solemn when we were at the cemetery, and no doubt knew many of the deceased who lay indefinitely, motionless in the ground, perhaps even those in the unmarked graves. A picture would not have helped to represent this sense of loss, this trauma, the painful reminders, memories of survival, life, and death.

Discussion and Conclusion: Prospects for Justice

Uranium City is just one of the many purpose-built industrial and war-company towns that dot the North American landscape. When a war suddenly ends or war industries withdraw, contamination and collapse lead to suffering for those remaining. As Eckstein (1997) has argued, the nuclear industry is an exemplary case of how corporate power overwhelms small communities and the surrounding area. It has an enormous impact on place. Mines are part of social change that leads to the disintegration of local, traditional communities, including indigenous communities (Wiles, McEwen and Sader 1999: 10). Local political economies are completely altered by the sudden, cyclonic quest for uranium. Industrial withdrawal is equally turbulent. Then trauma unfolds in slow motion when industries withdraw: the leeching of pollutants and gradual degradation of social conditions occurs over decades.

All grown in. A white picket fence. A fire hydrant. A sidewalk. A yard. A house. The roots of the plants now grow through it all, reclaiming the space. The roots of the plants clutch at everything, pulling these implements down into the earth, growing over everything left behind.

There are limits to knowing that the visual cannot overcome. There are elements of place that exceed visual methods. Contributing to literature on the limits of visual methods in justice research (see Carr et al. 2015; Walby and Piché 2016), I have noted three specific aspects of place related to Uranium City as a site that elude visual methods. More broadly, the photographs represent my vantage points, my brief time in Uranium City as someone locals would refer to as a southerner. From this perspective, photographs should be viewed as reformulations of places and persons encountered in the field (also see Liegl and Schindler 2013) rather than some direct route to knowledge in a realist sense. Fyfe and Law (1988) likewise referred to the epistemological status of photographs and other

representations as constructions to be assessed and contested rather than naively accepted.

What is missing from the photograph, the aspects of place that exceed or elude the camera, also raise questions about the future of the place, and therefore about social and environmental justice (Hofrichter 1993; Wenz 1988). As others have argued, there is an intimate link between justice, place, and space (see Bengtsen 2013; Martin 2011; Philippopoulos-Mihalopoulos 2010). What would justice look like in these towns that have been left behind by capitalist, cyclone-like resource extraction? Some people might find a kind of ecological justice in a place where capitalism makes the area unlivable for humans. The urban infrastructure in Uranium City is slowly being enveloped by plants, soil, and rock. Others might only see justice in compensation paid to locals and environmental remediation ordered by a court. Yet people still have pride in their communities (in Uranium City and in the other sites in this study), and suggest there is no need for justice. They have people and routines that mean something to them. The place still means a lot to them, the way it is. As one local put it, "We've got sand dunes, we've got gravel beaches and cabins…being an outdoor person, this is perfect…you couldn't ask for anything better" (Keeling 2011: 31). Every evening and weekend most locals head out to the remaining lakes that are not polluted. They sit in their boats, fishing, free and clear of the sounds of people, cars, machines, cities, airplanes, power lines, and streetlights. They have been forgotten, left behind. A lot of them like that, greatly. They cannot envision living permanently anywhere else. They see themselves ending up in the Uranium City cemetery too, making good on a bond that no one from away can really understand let alone depict with cheap snapshots.

Counter-visual analysis draws attention to ruined landscapes but also the limits of visual methods in social science. Foreshadowing such a position, Sontag (1977: 24) argued the "compulsion to photograph" is problematic because photographs are "a way of imprisoning reality" (1977: 163). Images can be acquired and possessed, which gives

people the false sense that reality can be acquired and possessed. But photos are only ever incomplete artifacts. In this sense, photographs must be viewed as backward-looking, as reductionist representations of the past. They have little to do with shedding light on the future. Justice must be in the future. Given the pollution, and the reluctance of corporations and governments to really fix radioactive environmental problems they have created in their urge for war weapons and commodities, the prospects for justice in these purpose-built, post-industrial towns are already deeply fragmented. Through the lens of the camera alone, the prospects for justice do not come into much clearer focus.

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