

For Something to Happen

Risk Engagement in the Shadow of the Doel Nuclear Plant

Innovatie

*Ineens was het af: elk continent
Voorgoed ontdekt en met een zorgvuldigheid
Die aan liefde grenst
Geheel en al in kaart gebracht.*

*Alweer eeuwen geleden koloniseerden we de nacht,
Drongen haar terug met licht en geluid,
Schoolden haar om tot andermans werkdag. We gaven
Alles namen. De vraag
Wie mag er wonen in de Nieuwe Wereld?
Werd pas gesteld toen er al onrust was ontstaan.
Iedere vinding voedt het contrast tussen de rechtlijnigheid
Van wat wordt bedacht, en onszelf die, omfloerst als altijd,
Alleen maar boven de tekentafel kunnen reikhalzen naar
Hoe vorm en functie samenvallen:*

De enkelvoudige gratie waarmee een raam opent en sluit.

Master Thesis

Cultural Anthropology: Sustainable Citizenship

Utrecht University 2019-2020

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Date: **August 14, 2020**

‘One maintains that “nothing happened here [in Chernobyl]. Nothing happened here... and nothing is going to happen here.”’ (Petryna, 2013, xix).

I have yet to see the Doel nuclear plant. Knowing it to be located quite close to the Port of Antwerp, I go out on one of my first days in the field hoping to at least catch a glimpse of it on the horizon. After following the tourist signs I come upon the historical harbor warehouse, overlooking the Schelde river. The sky is overcast and I do not see anything resembling cooling towers. They could be hidden in the clouds but then again, maybe they are never visible from that particular spot. I am not even entirely sure in which direction I should be looking. It is drizzling steadily and there is no one around to ask.

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Introduction

Built on the banks of the Schelde river, overlooking the port of Antwerp, the Doel nuclear plant with its four reactors is located in the most densely populated area around any nuclear station in the European Union. The heart of Antwerp, a city with a population of half a million, is located a mere ten kilometers from the plant¹. It is one of two nuclear plants in Belgium, the other one being the Tihange plant (3 reactors) near Liège, and together they provide 52% of Belgium's national energy consumption². In 2003, all seven nuclear reactors of Doel and Tihange were ruled to be dismantled once they came to the end of their 40 years' life cycle, in 2015³.

In 2012, sonar inspection took place with an ultrasound probe to make sure that the reactor vessels were free of so-called 'under-clad defects'. While this had appeared to be the case before, the novel inspection technique revealed fissures in the reactor vessels of both Tihange 2 and Doel 3⁴. These fissures were ruled to be hydrogen damage, and after having been out of order for inspection between June 2012 and June 2013, Doel 3 was deemed safe and restarted to run. The judgment call was made by FANC, the Federal Agency of Nuclear Control, which names its mission as protecting the environment and local inhabitants against any damage caused by nuclear activity⁵. On its website, which is also linked to the Belgian government, FANC explains that the fissures are not really fissures but a chemical reaction (hydrogen damage) and that the damaged parts are as thin 'as a piece of rolling paper [for cigarettes]'⁶.

In 2015, the year in which the Belgian nuclear reactors were to be shut down, the ruling government decided for them to remain in function for another ten years. This decision was preceded by a deal between the state and Electrabel, the owning company of the reactors⁷. By their new expiration date, 2025, the reactors Doel 1 and 2 will have been in continuous use for no less than fifty years⁸.

The age of the reactors combined with the discovery of fissures have led to national and international controversy. Nationally, warnings have been voiced that the plants would not be safe, in particular after politicians started suggesting keeping the reactors in use after 2025⁹. Walter Bogaerts, former ceo of Belgoprocess (a waste management service specialized in the storage of nuclear waste) labels the Belgian nuclear plants as too old and poses that in keeping

some reactors running, Belgium consciously takes ‘an unacceptable risk’¹⁰. ‘Several “fissures” turn out to be “cracks” with proportions up to 17,9 by 7,2 centimeters. And there are many of them: 13.047 in Doel 3 and 3.149 in Tihange 2. For Doel this means that in some parts of the reactor vessel, more than 40 “fissures” are found in each cubic decimeter. The argument that they would only be “as thin as rolling paper” does not make any scientific sense. The steel matrix is barely held together’¹⁰.

Internationally, the Tihange and Doel reactors pose a transboundary risk¹¹ in that the location of the plants means that not just Belgium, but German and Dutch territory is included in the danger zones of potential nuclear damage. The German government has urged Belgium to shut down their reactors in order to allow more research, after an independent German commission was unable to conclude that the situation was stable¹². Belgium has not honored this request.

On the side of the Netherlands, those provinces in the danger zone of the Doel plant (Zeeland and West-Brabant) have expressed a desire to be included in political decision-making regarding the plant. On its website, FANC states that ‘we communicate with transparency, neutrality and objectivity. We maintain honest and constructive relations with all our stakeholders. We aim for discussion based on mutual respect and active listening⁴.’ When invited by Dutch minister Schultz van Haegen to provide a statement to the Dutch state in 2017, in order to consider political involvement of the Netherlands in decisions related to the Doel plant and assuage worries about the risks the plant posed for Dutch citizens, FANC declined, citing ‘considerations of legality and sovereignty’¹³.

Another risk is posed by the (lack of) security in the Doel nuclear plant. The most highly publicized incident remains the 2014 sabotage of Doel 4, when on August 5 someone broke into the nuclear plant and drained the oil reserves, causing the reactor to automatically shut down¹⁴. FANC details this incident alongside the additional security measures taken to avoid future incidents. It remains uncertain how secure these measurements really make the plant. Activist Anja Hermans struck a bet with someone in 2007 to break into Doel 4, which she did so easily that she repeated her break-in a total of twelve times¹⁵. ‘I strolled through the reactor park. One tiny little bomb and the plant would have gone up. I spent an hour pulling faces at a security camera.’ She made a casefile for Electrabel to review, detailing the many points of entrance (sewage pipes, wading through the river, a broken part of fencing), only to be sued

by the owning company. Electrabel insisted that Hermans had only managed to reach the ‘accessible, public’ parts of the nuclear park, but Hermans pointed out in a 2014 interview that the sabotage that led to the reactor shutting down also took place within this public part of the nuclear station only, so the implication that she would not have been able to do damage there was false¹⁵. After the 2014 sabotage she offered to re-attempt breaking into the plant in order to help Electrabel find holes in their security, provided that there would be no legal consequences, but Electrabel did not take her up on the offer¹⁵.

In addition to concerns about the age of the reactors, the fissures, and the security of the Doel plant, nuclear power stations inherently pose risks. There still exists no thoroughly safe, satisfactory solution for the question of nuclear waste disposal, and it is particularly challenging to conceive of a way to ensure future generations that might lack context will still realize what they have on their hands if they come across the waste.

Belgian national decision-making takes place against the backdrop of a European phase-out from nuclear power. In the wake of the Fukushima disaster, willingness to invest in nuclear energy has declined and the EU’s Green Deal does not financially support its extraction¹⁶. While there is strong majority support among the Belgian population for the continued employment of the nuclear plants and 83% are in favor of keeping the reactors running until at least 2025, not everyone is comfortable with an atomic future. Organization STOP Tihange & Doel initiated a human chain of 50.000 participants in June 2017, calling for the immediate closure of the Belgian reactors¹⁷ and the 2016 Avaaz petition to move Belgium to shut its reactors down received over 1.1 million online signatures¹⁸. Stop Tihange has also joined other European anti-nuclear protests to encourage citizens to file charges against their governments for endangering their safety¹⁹.

Regardless of one’s political stance on nuclear energy in general and the Doel nuclear plant in particular, most everyone living in the proximity of the Doel plant hopes to live out their lives in peace. From experiences in the field, it is not even rare for Antwerp natives to be entirely unaware of the age and controversial state of the Doel reactors. This echoes earlier findings that citizens around nuclear energy plants prefer a degree of ignorance to a closer acquaintance with the facts, as this might lead to worries over a situation over which they have no control²⁰.

This thesis does not focus on policies, or the societal contestation or the measurable level of risk: instead it prioritizes this ‘silent majority’ that had no say in the construction of the plant or its continuing use, but will suffer the consequences in case anything goes wrong. This is a fate that applies to more and more citizens in the times of ‘post-normal science’, that ‘deals with solutions to societal problems that exhibit high systemic uncertainty and need high-stake decisions’¹¹.

Residing in Antwerp for four weeks, a stay limited by the effects of the current Corona crisis, I questioned local inhabitants about their thoughts and feelings on the proximity of the Doel plant, and about their perception of risk in particular. Although small in scale, the ethnography attempts to contextualize the viewpoints shared with me by in turn embedding their quotes in what I learned of their lives in the time spent together. This thesis is a series of portraits of people from Antwerp and close by, based mostly on conversations and informal interviews, attempting to shed light on the ways in which citizens engage with a large-scale risk they never personally chose to undertake.

Theoretical Framework: On Perception, Knowledge and Risk

Now the Earth was formless and empty, darkness covered the surface of the watery depths, and the Spirit of God was hovering over the surface of the waters.

Genesis 1:2, Holman Christian Standard Bible

The word ‘chaos’ originates from the ancient Greek *χάος*, the name of the void that preceded the creation of the known world with its Earth, light, and skies. The noun is derived from the verb *χαίνω*, which can be translated as gaping or laying (wide) open: it is an absence of logic and order, an original state in which all that is familiar has not yet come together to form separate wholes. At the same time, while the biblical God is said to ‘create’ the world as we know it in the Genesis verses, this is not an uncontested translation of the Hebrew source text. Ellen van Wolde, Full Professor of Old Testament Exegesis and Source Texts of Judaism at Radboud University, argues that the line traditionally translated as God creating Heaven and Earth should instead be translated as God separating Heaven and Earth²¹. In this interpretation there is no *creatio ex nihilo*, only a deity that structures an original whole by distinguishing.

Distinction is what people are able to observe, what allows people to observe. Human perception is relational in that a judgment on size, severity, and any other quality is meaningful only by contrasting it with something smaller, less severe, et cetera. Difference and change naturally capture our attention. Furthermore, to observe as a person means to interpret stimuli by means of a personal framework, making any observation situated and subjective. By perceiving we discriminate (even if only by giving our attention to one thing, and in doing so excluding all others) from the backdrop of an unmediated and unknowable world. In this manner, observing and failing to observe are not mutually exclusive, rather the opposite. Visibility and invisibility make one another possible, seeing only being enabled by turning a blind eye to what is not looked at.

In *Anthropology and Risk*, the 2015 overview of publications on risk by Gothenburg professor in Social Anthropology Åsa Boholm¹¹, a case is made for perception to be integral to the very concept of risk. Boholm makes mention of an oft-used and somewhat controversial distinction between so-called ‘objective’ and ‘subjective’ risk, only to argue that there can be no *a priori* risk that exists outside of human perception. In its most stripped-down form, she shows, risk

is only a situation or dynamic in which something undesirable might and might not happen. This premise already contains two elements of subjective interpretation: what is considered an undesirable outcome? And what is considered both a possible development of events but not a certain one?

Given these innate subjective elements, there can be no such thing as an objective risk external to the world of subjective observation, and speaking of risk is speaking of that which is perceived as risk. Within anthropological risk research it is understood that one's perception of risk is embedded in relations: culture and local practices, local knowledge, local norms. An example to illustrate just how much risk experience is rooted in culture rather than (the absence of) danger is how driving a car and taking part in traffic are not usually experienced as risk-taking, despite traffic being a well-known cause of injury and death. Risk distinguishes, is 'relational, in the sense that it orders – explicitly or implicitly – relationships between value and objects perceived as potentially harmful'¹¹.

If risk can be defined as having something to lose that is not yet lost, then risk is the human condition if only because every person alive has their life to lose. Traditionally, religion fulfilled the function of easing anxiety about the future by providing a narrative that gives meaning, offers guidance, and encourages people to reconcile themselves with the unknown¹¹. God works in mysterious ways. By contrast, risk has in the recent past become increasingly less associated with spirituality and more with science: with calculations and statistics, models designed to predict, insurance policies. Within the field of sociology, risk has increasingly emerged as a conceptual lens for analyzing life in late modernity, particularly under the influence of Anthony Giddens and Ulrich Beck. Giddens characterizes late modernity as characterized by 'radical doubt': the traditional expert systems have been replaced by a free market of ideas and opinions, one expert not necessarily agreeing with the other, and in the midst of this clamor individuals are expected to carve out their own fate and held personally responsible for their own (mis)fortune²². Beck calls this the 'tragic individualization of risk': the phenomenon where even though risk is still relationally defined and understood, citizens are expected to engage with risk on their own account and according to personal judgment, any negative outcome thus being an individual failure²³. With such a wealth of available information to base decisions on, who else could be to blame for choosing wrong?

One flaw in this reasoning is that it draws upon a common sense view of science as producing uniform and objective knowledge. In reality, scientific knowledge can only have meaning within a specific discourse, embedded in the context of a situated and ever-evolving understanding of the world around us. Just as observation is only possible by selecting certain stimuli at the expense of others, different interpretations of the same phenomenon are in a state of competition, one reading of events obscuring another. What is the discriminating force? Foucault argues that it is power structures. In his *History of Sexuality*²⁴ he introduces the concept of power-knowledge, joining both terms as sometimes done with spacetime, in order for the speaker not to forget that the linguistic distinction does not in actuality exist. In Foucault's understanding of power-knowledge, knowledge is both a product and a producer of power, so that it is an arbitrary and artificial distinction to decide where one ends and the other begins. Knowledge is a product of power in that power legitimizes knowledge: the difference between theory and fact is the support of power structures, whether those power structures are leaders with much authority in the eyes of their followers or renowned scientific journals lending additional credibility to findings. Simultaneously, knowledge produces power because knowledge legitimizes power in turn: when in past times a ruler declared himself to be the personification of the deity on earth, modern bodies of power use science to support their interests, like powerful companies cherry-picking data to send out the message that the interpretation of data that serves them is, in fact, truth. If truth is the unknowable original world, knowledge is what we can make out by focusing on one thing over the other, and power structures are the discriminating force that makes some theories more likely to catch our attention than others.

While I will continue using the term 'knowledge' separately in this thesis for purposes of readability, the Foucauldian understanding of knowledge as interconnected with power informs knowledge as it is used and to be understood within this text.

Adriana Petryna²⁵ in *Life Exposed* charts how knowledge, being at the heart of modern risk assessment and, consequently, policy making, becomes a site of contestation for competing power structures. While the Chernobyl and Fukushima accidents remain the ultimate manifestations of nuclear risk, neither incident has resulted in scientific consensus on the effects of radiation exposure in humans. Petryna directly attributes this knowledge gap to the political implications such knowledge would have. 'This lack of consensus at the basic science level deals a blow to the confidence that inspires expert claims to knowledge in the

field. Ambiguities related to the interpretation of radiation-related physical damage subjected post-Chernobyl state interventions and medical surveillance to a variety of competing scientific and political interests²⁵. She introduces the term nonknowledge to mean not the opposite of knowledge (ignorance), but rather the strategic implementation of a conscious lack of information. A study planned in the nineties to study the effects of radiation exposure on those living in the proximity of Chernobyl was denied funding on the grounds that it would be impossible to extricate the effects of radiation exposure from structural circumstantial factors such as poverty. In this manner, an attempt to gather scientific data is obstructed on the grounds that the quality of the findings would not be high enough, and in turn the existing lack of scientific evidence for radiation damage is used as an argument to dismiss citizens' claims of damage as psychological or otherwise 'unscientific'. Nonknowledge then becomes a tool to silence and invalidate lived experience.

What happened at Chernobyl, at Fukushima? The former was presented in the media as a failing of inferior USSR technologies, the latter as a controlled incident adequately handled by the heroic and efficient Japanese people. In reality the Chernobyl disaster was at least in part the result of failing expert knowledge rather than failing technologies^{25,26}, and it is not possible at this point to make conclusive statements on the radiation damage Fukushima did or did not cause, as it takes decades for the slowest forms of radiation damage to become visible in statistics. The reassuring narratives of exceptionalism (Chernobyl) and control (Fukushima) obscure the more complicated reality by laying claim to an authoritative interpretation of events that has no scientific basis. 'Closed stories don't just happen; they are achieved through a science of political containment that preempts public debate'²⁵. These conflicting interests of different stakeholders in knowledge and risk assessment are the reason why, to this day, the data gathered after the bombs dropped on Hiroshima and Nagasaki remain the most comprehensive that exist on the effects radiation exposure has on human beings.

Petryna, who spent over a decade researching and writing about the consequences of the Chernobyl explosion and subsequent Ukrainian policies, maintains that ethnography is the one field where lived experience might be captured. In her getting to know people who suffered as a result of Chernobyl, speaking to them both formally and informally in English, Russian, and Ukrainian, she sets out to record their lives holistically, ambiguities intact. In this way she responds to the 'rush to abstraction'²⁵ that did not just sidestep but effectively

erased the human suffering she bore witness to.

Similarly, researcher Kate Brown²⁶ writes about the pioneering work of Ukrainian-based researchers building on a body of empirical data on the state of the Chernobyl nature, only to be contradicted on their report of environmental damage by a researcher in the United States comparing statistical records. She argues that the very language used to discuss the Chernobyl ‘accident’ or ‘incident’ reveals the poor understanding thereof. An accident implies a situation where the nuclear plant was running fine until disaster struck, a zero-sum scenario. Instead, she proposes the term acceleration, as the data she analyzes (including a rise in radiation-associated cancers and birth defects dating back to before April 26, 1986) suggest a steady increase in the release of radioactive parts that culminated in the famous meltdown of reactor number 4²⁶.

In summary, while the dominant narrative is that high-risk decisions (such as building or maintaining a nuclear power plant) are taken carefully and securely based on exhaustive scientific data, this is inaccurate even if only because no such exhaustive knowledge exists on nuclear power. Petryna considers nuclear plants part of the “technologies of hubris”, that ‘focus on the known at the expense of the unknown and display a peripheral blindness towards uncertainty and ambiguity’²⁵.

In *Wildfires at the Edge of Science*, which looks at the ways in which American suppression of wildfire is challenged by climate change and old expertise has subsequently become dated at best and dangerous at worst, Petryna²⁷ addresses the challenge of understanding knowledge gaps and observations that do not fit current systems of knowledge as indicators of presently undiscovered knowledge – rather than as unknowables. At the time of the Chernobyl explosion, ‘external measurements were unavailable at the time of the accident; they were either not designed for these levels of radiation or were destroyed or lost as a consequence of circumstances associated with this accident’²⁵. The pre-existing tools of measurement are rendered useless in the unfolding of wholly new events.

Her plea is to embrace ‘horizoning work’ as a method to carefully start mapping uncharted territory. Horizoning work entails a return to the original foundation of science – a conscious attempt to let go of pre-existing knowledge, of assumptions, and only observe and perceive without preconceptions²⁷. What is it that you see?

Methodology

This thesis discusses the findings of my qualitative ethnographic research conducted between February 15, 2020, and May 6, 2020. While I had planned to reside in the town of Antwerp for the full length of my field work, the closing of Belgian borders in response to Covid 19 meant that my stay in Antwerp was limited to the period between February 15 through March 13, 2020. I met all my respondents in Antwerp. All are native to the area, although some of them resided in or originated from small nearby towns, notably Kieldrecht.

Save for one (the graphic artist, who I discovered and contacted online), all of my respondents were people I met through small talk. While I conducted one formal, hour-long interview that I recorded and transcribed, and had one meeting with another respondent explicitly set up to discuss his views on the Doel plant, all other data are based on field notes and informal conversations. This was a tactical decision, as my respondents were very reluctant to consider their own experiences insightful or meaningful, and I feared that overt scientific ambition would silence them altogether. In some cases my respondents only relaxed and started talking after they felt I understood their statements would not be worthwhile. While I certainly did not confirm this view, and actively tried to explain that I was trying to gauge the feelings and thoughts of ‘normal’ citizens rather than experts, I could tell in some cases that respondents relaxed and became more open only after they felt they had discredited themselves in my eyes.

On top of that it also took me some time to see ‘the data within the data’ and discover patterns in what people told me. As a result not every respondent included was aware that they would become part of my research, as in some cases I myself thought the conversation was social only, discovering its hidden data only in hindsight. Each and every one of the people quoted did know that I was in Antwerp for research purposes and that I brought up the Doel plant out of scientific interest. As I did not gather explicit consent from every respondent to use their identity, I have decided to anonymize all my respondents and refer to recurring locals by their profession, which in most cases was also how I came to know them in the first place.

With this thesis I offer a small contribution to the impressive body of existing anthropological research on living with (nuclear) risk. There have been extensive studies on the experience and risk negotiation of inhabitants of nuclear danger zones, some of which have been

incorporated here. Unfortunately I was unable to study Zonabend's *The Nuclear Peninsula* in time to contrast these data with my own; while my research questions always involved the risk engagement related to the Doel plant, the unexpected developments due to Covid 19 forced me to shift focus several times, and the very reticence of my respondents that ended up at the heart of my findings caused me at times to wander further away from the topic of nuclear power in order to branch out in other directions. Only returning to focus exclusively on nuclear risk at a later stage, there was no sufficient time to thoroughly process Zonabend's findings. While I am confident that they would have provided a meaningful addition to my analysis, I am also happy to have conceived of the current angle of my thesis independently, and to learn that my findings fit in with an existing body of knowledge on risk negotiation. From a scientific point of view, although Zonabend's findings are held in high esteem, her study dates from 1993 whereas I was able to use a new wealth of material including studies conducted or updated after the Fukushima disaster in 2011.

I have made an attempt to reflect the fragmented and often vague (reluctant, hesitant, or uncertain) nature of my data in the associative style used to relay my findings.

How do locals perceive the risk posed by the Doel nuclear plant?

“A lot needs to happen before something happens.”

My first respondent owns a specialty store that sells exclusive tea blends and an assortment of delicate china. He tells me that the white tea I decided upon is hand-picked before sunrise, when the leaves are still most fragrant. I am his first customer of the day. The street his store is located at, in the historical center of Antwerp, is under construction and it is not instantly apparent that the small boutiques down the road are still accessible and open for business. He looks out the window at the sand and machinery for a moment, then says it should not be much longer.

Like most everyone I meet in Antwerp, the tea shop owner recognizes my Dutch accent right away and asks what brought me to Antwerp. When I explain that I have come to research life in the proximity of the Doel nuclear plant, he says brightly that he lives in Kieldrecht with his wife. He clarifies that Kieldrecht is a small town that is even closer to the nuclear plant than the city of Antwerp.

It seems like a lucky coincidence, coming across someone close to the nuclear plant so quickly. Later on I realize that most everyone I meet has a connection to the plant in one way or another. Someone brings up an older brother working for a cleaning company working for the plant; someone mentions a coworker whose brother *or* husband is employed there; someone else married a woman who grew up ‘in the plant’s backyard’. While these connections are indirect and far-off, most of them are shared spontaneously after learning my research topic.

This is not the case for the tea shop owner. When I ask about his experiences living so close to the Doel plant he looks at me hesitantly, like he is trying to gauge what kind of answer I need. He tells me he does not think about it. Not at all? No.

I decide to elaborate on the topic myself, bringing up different perspectives on the current state of the Doel plant. Only then does he mention his own connection, an acquaintance that works at the plant. I must look so eager that he rushes to stress that this is not someone he knows personally, far from it, the information was passed down to him through two other people. According to this anonymous insider: ‘A lot needs to happen [at the plant] before something happens.’

These words stay with me. The phrasing is common enough, this is how people talk: if a place is boring then nothing is going on, if life runs its course nothing much is happening. Terms like uneventful and phrases like ‘did something happen?’ reveal the distinction between that which technically happens but does not deserve attention, or even acknowledgment, and that which is interesting and potentially impactful. Fissures showing up in a reactor vessel might not constitute an event, might be nothing more than another example of all man-made objects aging and degrading imperceptibly slowly all around us at any given moment.

It might also be an event in a chain of events leading to an actual happening. As Kate Brown²⁶ argues in *The Great Chernobyl Acceleration*, the language used to describe the Chernobyl disaster in itself betrays a lack of understanding thereof. She proposes the term ‘acceleration’ as an alternative to words like disaster or accident, because the latter terms imply a zero-sum situation where the nuclear plant was running fine until disaster struck. In reality, the data she analyzes (including a rise in radiation-associated cancers and birth defects dating back to before April 26, 1986) suggest a steady increase in the release of radioactive parts that culminated in the infamous meltdown of reactor number 4.

Will the emergence of fissures be considered an event in hindsight? Who knows what future the present is building towards?

A local coffee bar owner ends up becoming my first and only respondent who worked for the Doel plant himself. He is a big man who just turned forty and wears the names of both of his sons tattooed on his arms. His bar is named after the eldest. He describes himself as creative and someone willing to take chances, using the example of the biweekly techno-disco nights he hosts at his bar. You need to be willing to do things a little differently and spread the word, he tells me. He is quite active on his business’s Facebook page, and by the time we sit down for an interview he has already given me two stickers with the bar logo and address. We meet after he has closed down for the day, and once I am seated he moves to lock the front door, explaining that there might be people hanging around outside and he does not want unwelcome visitors.

Like most of my respondents, he is quick to stress that he is not against nuclear power. In his eyes there is no alternative that will generate enough power without damaging the environment too much. But yes, the Doel plant is old and it should be dismantled to be replaced by a new one. Any object comes with an expiration date and stops functioning as well over time, and that rings true for nuclear power plants as much as it does for his coffee machine. Still he maintains that he does not see immediate risk. I point out that some experts

in the field consider the fissures, which he knows about, an indication that the Doel reactors are no longer entirely reliable. 'That's always the case,' he says, adding that there are also experts worried about the Coronavirus, while really it does not seem to be more than another sort of influenza, killing old and vulnerable people.

About a week later I walk past the coffee bar and notice that it appears to still be closed after opening hours. The owner is inside and, upon recognizing me through the glass door, explains that someone tried to force entrance and a piece of metal broke off inside the lock. It will need to be replaced.

The tea shop owner tells me that he and his wife, who owns a Chinese restaurant within walking distance of his own store, are planning to move to Antwerp. I joke that apparently, the presence of the Doel plant did not play a part in their decision to leave. No, he agrees, they just want to cut down on their commuting. The distance is short but the traffic disastrous. No, the nuclear plant did not impact this decision at all. As an afterthought he adds that the proximity of the port did, somewhat: depending on which way the wind was blowing, sometimes they would hear clunking noises from container shipments.

Radioactivity has an intangible, almost ghost-like quality to it. In her portrait of Ukrainian worker and artist Aleksandr Kupny, Kate Brown²⁸ notes that his motivation to document the devastation inside Chernobyl's reactor number 4 stems from the belief that people need visuals to wrap their head around nuclear power. 'You can start to understand the power by seeing how the reactor fell apart²⁸,

The tea shop owner's comment on the noise disturbance from the harbor reminds me of this particular piece. Is it the fact that the nuclear plant does not emerge through the senses - does not produce a stench, does not make noise, does not reach the senses in any way other than through the static image of its physical form - that makes it easy to disregard it altogether?

The coffee bar owner tells me about the security measures at the Doel plant. Before being employed there, his background was thoroughly checked in an attempt to minimize the risk of terrorist attacks. He received a special badge to gain access to the plant, and every time he entered he underwent another check, including an inspection of the underside of his vehicle using mirrors.

There have been incidents nonetheless. 'A coworker of mine, someone working there, well, not for DHL but for the warehouse. And he, he was a little, yeah how shall I put this, if someone rapped his knuckles because he did something wrong, then he would respond

differently than a normal person, so he, he, it made him... not aggressive but verbally, he'd be sending this email to all the big bosses about how he thought it was not okay, blah blah, and then sign off with something like 'now I'm off to the toilet' or something. Just pulling stupid shit. Well at some point they, they'd had enough and ultimately he was not allowed into the plant anymore. And he has broken into the plant twice. So he... this has never really been in the news, or well, once, the second time it wasn't. But he'd climb into a transmission tower and would sit there like, come and get me, or like, I'm gonna jump, stuff like that... kind of suicidal. And things worked out for him in the end. Lives far away in Limburg. I'm not in touch with him anymore. But that was intense, just to know, with the safety and all. It could have also been a terrorist, of course. Or well, he was no terrorist, but what I mean is, a terrorist could break into the plant.'

In her introductory overview of risk as a conceptual lens, Boholm¹¹ notes how the media 'plays a crucial role in disseminating risk information, and while some risk issues feature in highly visible alarm stories, others are passed by silently due to less narrative potential'¹¹.

Is a scorned ex-employee breaking into a nuclear plant a 'happening'? Apparently it was no longer deemed newsworthy the second time. At home I try to find a record of the media coverage of the first incident described, but the search terms "break-in Doel nuclear plant" ["inbraak kerncentrale Doel"] result in over 33,000 hits. *Three teenagers arrested after climbing nuclear plant's fence. Security Doel plant is laughable. Security Doel plant is faulty. It's this simple to break into the Doel plant: Anja Hermans did it twelve times*¹⁵.

I ask the coffee bar owner to clarify that the ex-employee was not stopped by security.

'Uh, yeah, security caught on the moment he was yelling from that tower. So uh, that was less than ideal. Ah well. Everything turned out alright.'

Later in our interview he stresses how safe and well-guarded the plant is, and I remind him of the story about his former coworker. He says that was different: they forgot to confiscate his badge. He says this so confidently that I don't press the issue, and only when transcribing the interview do I realize just how stark the contrast is between his earlier comments and his assertion that the plant is guarded securely. I wonder what makes up the difference: is it a matter of him reassuring himself, or does the abstraction, the narrative of the hypersecure nuclear plant win out over his own experiences?

One reason for the wealth of data on radiation exposure in flora and fauna but not in humans, is that significant political interests are involved in the latter. When a country deems the risk

of nuclear power too high and closes plants, like Germany decided to do after Fukushima, they again become dependent on other types of fuel, with the ensuing financial and ecological consequences. Lowering the maximum dose of radiation one can legally be exposed to has an impact on ability to clean sites of nuclear accidents – the reason why in Japan, the ministry of Health and Labor twice raised the legal dose limit to which workers could be exposed. Formally acknowledging that citizens suffer from prior exposure to radiation means they have to be compensated; this is the struggle to obtain biological citizenship Petryna focuses on in *Life Exposed*²⁵.

Essentially, the ruling powers that citizens rely on to protect their interests and make educated decisions about risk, also have conflicting interests that can and, in the case of Chernobyl and Fukushima, have conflicted with both transparency and providing safety. In case of the Belgian government, conceding that the nuclear plants are no longer safe and should be shut down would necessitate finding new energy sources to reliably and affordably cover over half of the nation's energy consumption. The price to pay would not be strictly financial either, there is also the matter of sovereignty and retaining independence by supplying your own energy. There is a significant amount of money and power involved in whether or not the nuclear plants are running. Following Foucault's understanding of power-knowledge, where different readings of phenomena are in a state of competition and power structures are able to give some precedence over others and in doing so create fact²⁴, I argue that it is this distinction, this attribution of weight or credibility, that makes up the difference between the things that happen in the background and the 'happenings'. In choosing between his own observations and the dominant narrative of the secure nuclear plant as provided by the state, FANC, and Electrabel, the coffee bar owner dismisses his observations as atypical and insignificant. They must be misleading because they do not fit the story. The ex-employee breaking in was not a 'happening' but merely one more thing that happened.

Petryna²⁵ writes of the same phenomenon of theory winning out over reality when describing those people that, according to scientific consensus, could not possibly be alive after the radiation doses they were exposed to. 'The heterogenous facts of living that make up their stories of death and recovery have nowhere to live under dominant systems of knowledge'. Still, Petryna refers to external systems of knowledge excluding what these sufferers know to be truth. Whether motivated mostly by conviction or by a desire to reassure himself, the coffee bar owner does not need anyone to tell him that his observations are misleading: he readily explains that to himself.

At one of the biweekly techno-disco nights hosted by the coffee bar owner, I end up talking to an Antwerp native, a woman who appears to be in her mid-thirties and is overjoyed to be working for the government after a stint in legal work. She describes her experiences as a jurist as sobering: a harsh work environment where people care mostly about appearances, and from comments here and there I infer that her dismissal was unexpected and callous. Later that night she asks me to accompany her to the dance floor and raises her drink, cheering: ‘Employment protection! I’ve got myself employment protection!’

I follow her outside when she takes a break from dancing to smoke, and we talk politics. She is eager to school me on Belgian politicians and asks about the Dutch political landscape. While quick to remind me that I am ‘far, far more left wing’ than she is – regarding herself in the political center – she says that the period she was in between jobs changed her perspective. It made her realize how vulnerable you are as an employee in this day and age, and how much of one’s identity is rooted in employment. We agree several times in relation to different topics that citizens are too trusting in our first world countries, too quick to assume that their rights will be safeguarded for them by the institutions in charge.

Eventually she asks what brought me to Antwerp. Although quick to summarize political developments earlier, the fissures and the age of the reactors are new information for her. I can see that it takes her a moment to process it, staring over my shoulder. Finally she says: ‘But it can’t be too bad, it can’t. They wouldn’t keep it running if it was.’ She does not specify who ‘they’ are.

Another one of my respondents I meet outside in the historical part of Antwerp, when I point out that I own the same tote bag he is carrying, featuring a print of a Penguin book cover. He is a blond-haired and slender man in his mid-twenties wearing glasses and, I later find out, fond of saying ‘voilà’ to mean yes, there you go. As it turns out he is a high school teacher who studied philosophy and wrote a thesis on Freud and humor as a form of release. He believes that this release is what Belgian people need and lack, it is a matter of culture: he spent time in South-Korea and although he found the stereotypes about its competitive society and high work pressure to be true, people managed to protect their mental health by letting go during nights of karaoke. If you were up on stage and started weeping during your rendition of a song, everyone would understand. Although he loves teaching and speaks passionately about the development of teenagers, his own work pressure is quite significant, as he is a first-year teacher and has to figure everything out himself. Besides it really is two jobs: the teaching, grading and preparation of classes *and* the board meetings and administration. When

he was hired there was a mentor figure stressing how he could come to her with anything, but when he did approach her about his work load the response was dismissive. Did they not teach him how to handle this in his education? Either way, if he wished he could attend a course on managing stress for free. Ah, I say, so in order to experience less stress he is welcome to take on yet another task? He leans back, nodding: 'Voilà.'

The teacher characterizes Belgian people as modest, skittish people preferring to spend a lot of time indoors and around their next of kin. He is looking to leave the country in the near future and does not hide his surprise over my enthusiasm for the city of Antwerp, which he calls 'a hellhole' full of conservative, right-wing people.

'The second you stopped to talk to a stranger outside,' he recounts our first meeting, 'I knew you were a foreigner.'

During a coffee meeting I bring up the staggering majority of Belgians in support of keeping the nuclear reactors running for another five years. He regards this a financial matter, combined with the idea that 'it [fear of nuclear accidents] is probably a lot of fuss over nothing' or it 'can't be that bad'. I ask if he would consider those responses typical for Belgian people, and he pauses then says no, he would not, but they might be emblematic for our time. The presumed nuclear risk would be another threat in a long list of threats – like acid rain – that seemed daunting and never quite materialized.

How do locals ‘avoidantly engage’ with the risk of the Doel nuclear plant?

“If something happens, there’s nothing you can do about it.”

Presently residing in Antwerp with his family, the coffee bar owner lived in Kieldrecht for some time prior to his marriage. He rented an apartment there. As I understood from the tea shop owner just how close the town of Kieldrecht is to the Doel plant, I ask if the plant was visible from the windows of this apartment.

‘Yes, yes, yes. Um. From the place I lived in at Kieldrecht you could almost see it, but yeah, you just know [it’s there]... We’d get these letters in the mail sometimes, like a kind of informative letter, and for example the drug stores in Kieldrecht were all stocked up on enough iodine pills to distribute them to the whole area, because apparently you need to take iodine pills if there’s a nuclear disaster. But well, that plant is close enough to Antwerp, if it went up into the air we’re all long dead just the same. Or well, contaminated. But well, you just have to not think about it.’

You just have to not think about it. This quote reminds me of what the tea shop owner told me after a brief and slightly uncomfortable silence, words that sounded like a conclusive argument: ‘If something happens, there’s nothing you can do about it.’

This sentiment is voiced by most of my respondents in one form or another. Hearing it for the first time at the specialty tea store, it seemed sensible enough to me. In fact, it has always been my own attitude toward the Tihange plant, the danger zone of which includes the childhood home in Maastricht where my parents still reside. When I first became aware of this I ask myself what purpose the argument serves. If anything it seems counter-intuitive to me, taking comfort in a reminder of your own powerlessness. But once I pause to consider the implications of the argument that nothing can be done about it, I realize that for me it has served as a license not to think about the plant at all.

It *feels*, for me, morally right to ponder upon social issues and accept the unease that comes with that. It *feels* right to ‘not look away’, to face risk. But dwelling on the risk also brings about anxiety that desperately makes me want to look away. By telling myself that whatever I do has no impact anyway, I effectively remove the moral component out of the equation, delegating both worrying about the plant and ignoring it to the strictly personal realm of emotion and thought that bears no political implications. And for my own peace of mind it is better not to dwell on the idea of my parents in a danger zone, or the image of the fields I played in as a child being contaminated on a scale that the human mind has trouble grasping.

‘Value is essential to the concept of risk [...] If no value is at stake, there is no risk’²⁵.

Stress in itself is also more than a mere byproduct of risk or suffering; it can worsen and even create both mental and physical issues. There exists a theory that those claiming to suffer as a result of low dose radiation exposure actually suffer from ‘radiophobia’: their mental health is compromised to such an extent by the knowledge of their exposure, that the ensuing anxiety manifests physically and their fear becomes a self-fulfilling prophecy. Both Petryna (2003) and Kate Brown²⁸ makes mention of the widespread conviction, including among experts working with contaminated people, that at least in some cases the fear is worse than that which is feared. Even Kupny, the Ukrainian worker who maintained that the ruins of Chernobyl need to be made visible for people to become aware of the reactor’s potentially destructive power, ascribes to this phenomenon and says he fell victim to it. ‘Any health problem I got, I would question, ‘was it because of my dose?’ That is how people do it. They know they were exposed and they want to pin every illness or injury they have on that fact. [...] Those who are sick a lot - it comes from the mind. They torture themselves’²⁸.

While this theory pertains to exposure to radioactivity, in this case where, as for now, nothing has ‘happened’ and nothing might happen, stress could well form the single adverse health effect of living near the plant – and stress can be reduced or avoided altogether by not entertaining the stressful topic in the first place.

Nobody really wants to talk to me about the Doel plant. Although most everyone I meet is friendly and almost all of my respondents are people I met through spontaneous small talk, the conversation slows down the moment I wait for them to speak about the Doel plant. They start sentences they do not finish, shrug, or seem lost in thoughts they do not share with me. When I first ask the teacher if he is willing to meet up for coffee and share his thoughts on the Doel plant, he agrees only after warning me that he ‘does not have a good opinion [on it]’ and is ‘not the right person to talk to [about the plant]’. When people back home ask me how my field work is coming along, I tell them that my thrilling findings are that no one ever thinks of or forms any opinion on the Doel nuclear plant and nobody has anything to add to that. I meet for a drink with a young Belgian couple that a fellow research student knows and got me in touch with. They are higher-educated, soft-spoken people who love craft beer and insist on paying the bill as I am still a full time student. For both of them, my explanation of my research topic is the first they hear of the controversy surrounding the state and security of the Doel plant. The man is visibly stricken, his face tense, and he turns to his girlfriend to tell her in no uncertain terms: ‘I want to move away.’

She is lost for a reply and he does not wait for one, turning back to me to ask where it is safe. I hesitantly explain what I can see he is simultaneously realizing himself: that given the structural issues with both the Doel and Tihange plant, simply moving to another Belgian city is not a solution for avoiding this particular risk. He slumps back in his seat, looking defeated. As a researcher I want to probe further and ask what is going through his mind. As someone who grew up in Maastricht, with my parents occasionally joking that any one problem they were discussing would cease to matter if ‘Tihange went up’, I can make an educated guess that he is thinking of his own childhood fields: places and people he holds dear that suddenly appear like they can be wiped out without warning. I say nothing. We talk of other things for the rest of the night.

Reflecting on my field notes, I realize that what I had previously regarded as a lack of data – the reluctance of respondents to show any kind of involvement with the nuclear plant – was never real disinterest after all. I recall the tea shop owner telling me that the Doel plant was never on his mind, only to share a piece of information (‘a lot needs to happen before something happens’) that was interesting enough to be passed down to him through other people, interesting enough for him to remember and recount. Evidently he did think of the nuclear plant, even if only on rare occasions. Why insist that he does not?

Nonknowledge, it appears from my observations, is not applied exclusively by nations.

Trying not to think of a topic, not educating yourself on it, can be an active tool to protect your mental well-being. When Kupny²⁸ started his excursions to the inside of Chernobyl reactor 4, he did record his dose. This was until his companion asked what purpose there was in having that information. “‘What good will it do you to know? The less you know the better you will sleep’” So he stopped.

What good will it do them to know? Keeping in mind that no scientific consensus exists on the state of the Doel nuclear plant, and that it is impossible for anyone to know what will and will not happen to it in the five remaining years of its planned life span, what good will it do anyone to read and think of risk? Keeping in mind that my respondents cannot avoid this risk by moving one town over, how will they personally benefit from knowledge that is both alarming and inconclusive?

I argue that the reluctance of my respondents to dwell upon the Doel plant; their lack of fleshed-out opinions on it; their insistence that they do not think about it or that one should not think about it and other avoidant responses are in themselves a form of risk engagement. I will call this ‘avoidant engagement’. It is a form of engagement in the sense that the

reluctance to engage is in itself informed by emotional involvement. It explains the desire of my respondents to avoid the topic, the occasional discomfort and tension when confronted with it anyway, and the contradictions in some of the statements I record. The tea shop owner telling me he never thinks of the Doel plant while remembering the single statement an informed stranger supposedly made on it; the coffee bar owner ensuring me that the Doel plant is secure after detailing how his ex-coworker's illegal entering made him realize that it was not; the governmental worker who prided herself on her healthy skepticism towards ruling powers, only to turn around and insist that those in charge would not allow for a hazardous nuclear reactor to continue running.

I spend a lot of time walking the streets of Antwerp, trying to familiarize myself with its atmosphere and to meet new people, and on one of these walks I fall in love with what later turns out to be a vintage botanical collecting box in the window of an antique shop. Although each item displayed features a little tag with its price, the store does not appear to have regular opening hours, instead featuring a note with instructions to write down your phone number and leave it in the mail slot if you see anything of interest. I follow suit, wait for a week, then try again and this time attach a message explaining that I am quite taken with the collecting box and would very much like to buy it. I receive a call after this second note. The man calling confirms my suspicion that he was initially put off my Dutch phone number, thinking me a tourist shopping in Antwerp for the day. We arrange to meet.

My caller turns out to be a man in his mid-fifties who works as a home renovator and landlord. He is passionate about preserving historical details and particularly loves the so-called 'guillotine style windows', the ones that are to be opened and closed by pushing them up and down vertically. He says these are quite common in the Netherlands, are they not? I assure him they are, although I lack any frame of reference for how common these windows are in other countries. He goes on to share his vision that each building has its unique history and qualities and one must respect that. Too many people take no pride in their profession. He does not want to jump to conclusions, but he hears a lot of complaints from other people in the business about receiving rent payments too late, or tenants not treating the living space with care. All he wants to say is: he has been in the business for decades and he has never had issues with that. Not once.

The antique shop belongs to the home renovator's parents, who are now in their eighties and no longer capable of running it themselves. Selling something here and there is how he tries to supplement their income. Both his parents live off his father's pension, given that prior to

EU-rulings on the matter, married women were denied access to formal employment in Belgium. He is pleased that I am so taken with the botanical box and reveals that it once belonged to his own grandmother. Taken aback, I ask if it is not difficult to sell this item that has been in the family for generations. His face falls. ‘Oh lady, don’t even ask.’ For his father, no, he is not a sentimental man. But it is hard on his mother. Still, there is too much stuff to hold onto and he would rather sell some possessions while they are still alive to benefit from it themselves. I stress that I think the collection box gorgeous and that I will cherish it, which seems to cheer him up a little. Who knows, he says, one day I might be carrying it when out in the woods with children of my own.

He has seen Antwerp change radically, pointing my attention to the many electric scooters you can rent and drop off around town. The city has become too expensive, it is no longer quite possible for a college student to afford modest housing. He asks if I have noticed the many wind turbines around the city – I have, their red lights blinking steadily at me by night through the only window the room I rent features. He tells me that even in Knokke, the most expensive beach location of Belgium, they clutter the horizon.

When I talk about the Doel plant his expression grows weary. Yes, it is a serious issue, even when nothing goes wrong the plant will need to be dismantled at some point and what then? Where to go with that kind of waste? Dump it into the sea, like Belgium used to do in the eighties? Then he seems to cut himself short and says that ‘sometimes you have to walk in line’.

I include this quote in a field report and receive a comment from my supervisor asking what it meant. He did not elaborate on the statement and I did not ask him to, as his words seemed self-evident to me. The way I understood his comment in the context of our talk, it amounted to as much as: stay in your lane. You are but a part of a whole you have no control over. The home renovator had found a creative way to financially support his aging parents, using the little that was left of their marketable resources. He proudly told me that his son was studying to be a lawyer and surely would have no trouble making his own way in the world. He believed that the care and diligence he put into his work was reflected not just in the quality of his rental spaces but also in the conduct of his tenants. Nuclear power plants, however, were beyond his command.

In *Life Exposed*²⁵ Petryna relates how a family she is staying with, the Strokats, arrived in Kyiv for a hospital appointment mere hours after the meltdown of Chernobyl 4. It is unknown how high radiation levels were on that April day; the Soviet Union offered falsified data, and

external measurements were unavailable as measuring systems were either not designed for such high levels of radiation, or destroyed in the wake of the explosion²⁵. As the train pulled into the station the Stokats saw a total chaos, and from the crowds someone shouted at the passengers that they were not to leave the train. Petryna argues that her respondents, being Soviet citizens, had previously used their ability to disregard what was going on around them as a survival strategy. ‘The Stokats refused to believe in the chaos all around them. This refusal to believe and to witness was a virtue that had insulated them from political machinations before. But here that virtue led to disaster²⁵.’ They exited the train. Thinking of the comment of the high school teacher – nuclear risk appearing as yet another threat when many of the previous alarming risks never quite seemed to come true – briskly disregarding abstract risks that come with unfathomable horror scenarios could well be nothing more than a valuable life skill for someone to possess in this day and age.

After a few weeks in Antwerp I return to the tea shop owner to make sure he consents to using the information he told me. He does not recognize me at first, but once I bring up the Doel plant he remembers and smiles. His smile falters when I tell him I came to make sure it was alright for me to use his data for my research. He says he feels he did not tell me anything special. I clarify that yes, I really am just talking about what we discussed; his living in Kieldrecht with his wife, the acquaintance saying a lot needs to happen before something happens, their upcoming move to Antwerp. He consents, seemingly with some hesitation. I offer to leave my email address in case he changes his mind or wants to read what I made of his comments. No, he says, he cannot possibly see what for. I say I can leave it just in case he changes his mind. No, he maintains, less hesitantly now.

The coffee bar owner gives me the number of his wife, a woman who grew up ‘in the backyard’ of the Doel nuclear plant. He insists that really, it is her that I should be talking to, as she both worked for the plant at the same time he did and grew up in the area. In fact, her whole family has lived there for generations. It is funny, he says, now that he has talked to me about all this he realizes that he does not even know his wife’s stance on nuclear power. And they have been married for almost twenty years! He will make sure not to ask her either, he adds excitedly, not now, he does not want to put ideas into her head before she gets the chance to speak to me herself.

His wife never replies to my message.

How do locals ‘actively engage’ with the risk posed by the Doel nuclear plant?

“Something could happen to the chemical plant as well.”

Describing his former job as an express courier – driving between the Doel plant, the Tihange plant and administrative and educational centres in between – the coffee bar owner corrects himself several times on exactly how long he worked there. He finally surmises it must have been five or six years. He mostly transported documents, adding that he drove around with parts on a few occasions. His eyes light up a little when detailing how those would be contained within carefully sealed packages, sporting the famous ‘danger – radioactive’ labels. I ask if he ever worried.

No, he says, and interrupts himself in the next sentence to ask if I am aware that cows are slightly radioactive? I am not. Yes, he says, someone explained to him that because with all the grass they eat and the ruminating... the explanation does not come together for me, but his conclusion is that the natural radiation present in cows is higher than of those parts he was transporting. He goes on to say that while he was in fact worried at times, those worries concerned being stopped by the police, and what kind of reaction a police officer might have upon seeing the sign for radioactive material. Not that it was illegal, of course, but still, you never know how people will react.

After our interview I look up radioactive cows and mostly find articles about bovines grazing on contaminated soil.

The coffee bar owner is far from the only person who stresses that radiation is natural. Most of my respondents make mention of it, sometimes challengingly so, as if they expect me to argue them. Nobody clarifies the significance of the assertion that nuclear power is not a man-made force, and I only realize when recording it that I had not asked follow up questions on it. I, too, catch myself taking solace in the idea that nuclear power is natural. Is this nothing more than the naturalistic fallacy? Surely there are enough terrible things in the natural world.

When I visit the official FANC website I check their introductory message and sure enough: an explanation of natural radioactivity and the ways it already occurs in nature, followed by a somewhat more compact mention of man-made radioactivity²⁹. Kupny also regards man-made radioactive power as part of the natural world, calling it a force of nature. Brown concedes in turn that isotopes have ‘a life span’ as well as ‘natural qualities’ and are

unstoppable as natural forces tend to be²⁹.

When reflecting on the importance of whether or not man-made radioactivity can be considered natural, I think of the newfound term “technologies of hubris” mentioned by Boholm. Hubris, not knowing your place, not staying in your lane. It seems wrong to me that mankind, valuing life and dependent on other life, creates something capable of such annihilation of life forms. I remember Robert Oppenheimer watching the detonation of the atomic bomb he helped create, thinking of a quote he once read in Hindu scripture: I am become Death, destroyer of worlds³⁰.

While the idea that man-made nuclear power is in a way part of the natural world does not in any way lessen its destructive potential, for me it does make the discovery of it seem like less of a crime against life itself.

This is all the more ironic given that if radioactivity corrupts anything, it is the relation with one’s own body, ability to be with others, and reproduce. Petryna notes how a man working to clean up the Chernobyl ruins comes home yelling out to his wife and children to stay far away from him, as he was contaminated. She also makes mention of a worker who decided against having children as he was convinced that no healthy child could come from his genes²⁵. Even without exposure to extreme doses of radiation, Kupny’s²⁸ explanation of distrust towards the source of any and all physical ailment show the effect of uncertainty about what goes on inside after being exposed.

My last respondent describes the post-nuclear ruins he creates as ‘nature taking back control’, to which I quickly reply with the question if he considers the kind of nuclear power in the Doel plant to be natural. He responds affirmatively and without any hesitation, pointing to the occurrence of radioactive energy in nature, how the sun itself is a fusion reactor. Radioactivity is no human invention, no. He himself is a graphic artist whose graduation project depicts his native town of Antwerp in the wake of nuclear disaster. The prints feature no text or people, simply abandoned spaces, sometimes with light streaming in, sometimes dark. There are few hints as to what we are seeing the aftermath of. One space looks overgrown, the other sunken in what might as well be another dimension. You can almost hear their silence.

The graphic artist readily agrees to talk to me after I reach out online, saying that he knows the topic is meaningful to people. It has been years since he completed his novel, but he receives regular questions about it to this day. He presently teaches at the graphic design

academy he also graduated from himself. The graphic artist appears to be in his late twenties and is a man who talks with easy enthusiasm, smiles often, and works a side job as a tattooist. In his spare time he likes to go on urban explorations. He climbed into the abandoned, weathered houses in the town of Doel, which was almost entirely abandoned over the years as a result of a planned extension of the harbor. Residents were bought out, leaving it close to a ghost town. The graphic artist says that these experiences helped him create the atmosphere and visuals pictured in his graphic novel, a term he does not care much for, preferring to describe his art as ‘a stroll, a tour’. He asks if I am familiar with Antwerp and when he learns that I am not, he says that I will not be able to experience the art as intended. Featured in many prints is the graphic design academy he studied and teaches at, a place very familiar to him. As such, the visuals do not just show what is left of these enclosures but also what is missing, in this case the lively buzz of youthful crowds. I am reminded of this assertion when first reading the Boholm quote on value being essential to the concept of risk¹¹. It is not possible for me to grasp the full emotional implications of these sights, as I cannot myself feel the unspoken loss that lies in the difference between reality and imagination. Naturally I can compare the bleak rooms to clean, well-lit, and welcoming ones I’ve encountered. But I cannot compare a lost ruin to a prestigious university in which a formative part of my life took place.

I ask the graphic artist about his motivation to make art about the results of a nuclear disaster. He tells me that there was a significant amount of media coverage on the Doel plant following the 2014 sabotage attempt (his novel being completed in 2016), and the background information on these pieces brought to his attention that there was question about the state of the nuclear plants. He wanted to respond to that, do something with that. I ask him about the risk and at that point he slows down a little and gathers his thoughts. He tells me that something could also go wrong with Antwerp’s chemical plant. I inquire about this, not having heard about it before. He tells me that it is a big chemical site and could easily result in explosions, were something to go wrong.

What the graphic artist displays here is a different kind of risk engagement than discussed in the previous chapter, one I would like to refer to as ‘active engagement’. Rather than trying to ignore the risk and avoid the topic altogether, this is an active negotiation. The awareness of the risk posed by the nuclear plant is compensated by zooming out and perceiving of the nuclear plant as simply one of the many risks that are around us every day, most of which we never worry about at all. It offers a perspective that leaves the plant and its risk less

exceptional. I wonder if really this is only the first half of the reasoning offered to me by the high school teacher: *yet another threat in a long list of threats that never quite materialized*. If so, is the merit of this line of thinking in reminding oneself of the other side of risk and contingency, where thinking of the possibility of disaster is swiftly corrected by thinking of the possibility of the lack of disaster as demonstrated by so many potentially disastrous technologies in modern life?

And it is true, one would be paralyzed if aware of everything that might go wrong at any given moment. Giddens uses the term ‘protective cocoon’ for the faith most people have that all the bad possibilities out there will not come true for them²². This is a necessary requirement for having the freedom of mind to focus on everything that is individual and unique about our lives, rather than constantly worrying about international developments or getting hit by a car while crossing the street.

This kind of rational negotiation is not the only form of active engagement I come across. Another one is humor, the high school teacher’s Freudian release. The coffee bar owner tells me that when he just started working for the nuclear plant, he liked to joke that he glew in the dark. The tea shop owner says that he and his wife sometimes tell each other that the reason their little vegetable garden does so well is because of the extra heat from the nearby power plant. ‘Alas,’ he smiles, ‘winters are just as cold.’

The coffee bar owner met his wife, who was working for the nuclear administrative centre at the time, while he still worked as a courier for the Doel plant. He explains with visible enjoyment that because of the intermittent stops to drop off documents from not just both nuclear plants but also the training centre at her workplace, he often saw her thrice a day. One day he joked that they saw so much of each another that it was almost like they were married. ‘Her last name is Vonk [‘spark’], and that’s when sparks flew.’

When first recording these jokes, they do not seem to me like risk negotiation, just people joking as they always do. Later I change my mind. While none of these people feel a sense of ownership over the story of what goes on in the Doel plant, let alone what might happen to it in the future, these instances of humor and personal anecdote show how the plant does penetrate daily life. Not in the shape of a risk or any sensory experience, but in the form that they can claim ownership over: the symbolic role it plays in their personal lives. The concept of the nuclear plant as a risk or threat is as far removed from the concept of the nuclear plant in their domestic experiences as the story of the hyper-secure nuclear plant can be removed from the reality of the nuclear plant that gets broken into. The two do not contradict one

another so much as they exclude one another and thus never meet. Nobody knows ‘the Doel plant’ but they each have their own Doel plant.

In these private stories the plant also appears as weird and scary, although in a more casual way that one can freely make fun of, and it is not only scary but also a little exciting.

Most of my respondents at some point ask why I chose to study the Doel plant, to which I reply that I find it exemplary of other abstract, high-risk developments and potential threats in modern life, climate crisis being the first to come to mind.

The graphic artist is the only one to ask what attracted me to the topic of nuclear power. I tell him that I was drawn to the sheer scale. Having to remind yourself not to think in terms of years or generations, but in centuries. Not to think of trees or woods, but of ecosystems. The vastness, not just the brute power but the temporal vastness that turns whole family lineages into blurs, then specs, then nothing at all.

He passionately agrees and describes himself as ‘absolutely fascinated’ by nuclear power as by, he adds in the same breath, space and black holes. By his own admission he is not knowledgeable on outer space, but it speaks to him nonetheless. He says that maybe like with space, part of the appeal of nuclear power lies precisely in its risk and unknowns, in the way that it does not adhere to, as we said, the human scale? He brings up the life span of radioactive waste, trying to put it into perspective by using human history. ‘A thousand years ago, some systems of writing were still being invented back then!’ It stays with me, the way he seems to make the distant future more comprehensible by drawing upon the distant past, the same distance but filled in rather than a black box.

Brown²⁸ notes how Kupny ‘placed himself before a barrage of hazardous radioactive isotopes because he sought to grasp decaying radioactive isotopes as the elemental force burning at the center of the universe, the energy that gives life and can snatch it away’. It seems to me that this is the crux, that faced with a power that can wipe life out with broad strokes, one is reminded of the dear smallness and vulnerability of it. The same way that many people feel and enjoy feeling small when looking for a long time at a star-filled night sky. Realizing that on a universal scale mankind is nothing only to feel that it is in fact, for people, everything.

Save for the graphic artist, every single one of my respondents told me about some form of personal risk in their life without prompting. The tea shop owner who was hoping for the street renovations to be over as soon as possible so his business could generate more money again. The high school teacher who wanted to leave Belgium, but leave it with more work

experience than he had gathered so far, and who was unsure of how much longer he would be able to deal with the stress from his job. The coffee bar owner who took risks professionally, saw them pay off, but instead faced an attempted break-in. The governmental worker who was still reeling from her period of unemployment. The home renovator who worried about his parents making ends meet.

Radiation is intangible much like thoughts and emotions are: when searching for it, it is easiest to look for the mark it leaves. Like Kupny's photographs of isotopes drifting around like sparks make something visible that is real but usually remains hidden, art lays claim on space. Where thoughts and feelings drift in and out of focus, are negotiated by the people experiencing them, art is static and bears testament to these thoughts and feelings having been felt, having been real, having been there. What the graphic artist does with his novel is taking an abstract scenario and making it into its own reality.

Every person I talked to in Antwerp on one level or another recognized the unease that comes with knowing the explosive power of the nearby nuclear plant. Their anxiety and ways of dealing with it, their attempts to reassure themselves and others, their dedication to living their lives and facing their own struggles nuclear plant be damned – none of that will show up in statistics or inform national policies or be considered newsworthy.

It might not even come up in conversation. But the artwork communicates: even if nothing will 'happen', something already has.

Conclusion

In this ethnography I have attempted to capture the nuclear risk engagement of my respondents in Antwerp. My first question was how the risk was perceived by locals, and in the data I gathered I saw a back-and-forth movement between acknowledging that the plant was old (or, in other cases, that nuclear power plants were inherently risky) and a refusal to delve into the topic seriously.

My main finding is the explanation for that, namely that I observed two ways of risk engagement, avoidant and active. Avoidant engagement is a withdrawing movement – away from the topic, away from information on it, or even away from admitting ever thinking of it – that serves as a survival strategy in handling a risk one cannot easily avoid. Active engagement moves towards the risk: it argues that surely radioactivity is natural, that surely life is full of risk. Active engagement also includes the ways in which people connect to the topic and the plant even when they might also want to avoid it at times: the jokes, the way it shows up in their private lives here and there like something in the background of a family shot that in its own way has become familiar. Ultimately there is the artwork that lends a physical manifestation to the human experience of uncertainty and anxiety that precedes actual disaster.

In the process of researching the topic, I was forced to scrutinize my own avoidant tendencies. I ended up liking Antwerp so much that I considered moving there more permanently and looking for a job in Belgium in the fall. I considered that it might be difficult after the Covid 19 crisis, lots of people would be looking for work and I might experience a disadvantage from my obvious Dutch accent. Plus I would have to forego my Dutch network, there would be next to no personal connections.

It took me another two weeks to realize that I had not spent any thoughts on the proximity of the Doel nuclear plant. Which might be laughable but I was not planning to stay for long, maybe a year, two at most. It had held up all this time, fissures or not. What were the odds?

Bibliography

1. J. Caligiuri. 2017. Prospects for Phasing Out Nuclear Energy in Belgium: Stakeholders, Advocacy Coalitions and a Transboundary Phase-Out Strategy. Master Thesis, University of Utrecht, Faculty of Law.
2. Nucleair Forum. n.d. “Kernenergie in Europa: Overzicht,” (“Nuclear Power in Europe: an Overview.”) <https://www.nucleairforum.be/thema/wereldwijd/europese-unie>
3. Belgian Federal Government. 2003. Wet Geleidelijke Uitstap.
4. <https://fanc.fgov.be/nl/over-ons/wie-zijn-wij>
5. <https://fanc.fgov.be/nl/foutindicaties-de-stalen-wanden-van-de-reactorvaten-van-doel-3-en-tihange-2>
6. <https://fanc.fgov.be/nl/foutindicaties-de-stalen-wanden-van-de-reactorvaten-van-doel-3-en-tihange-2>.
7. Standaard, de. December 1, 2015. “Nieuwe Politieke Goodwill Tegenover Electrabel.” (“New Political Goodwill Towards Electrabel.”) https://www.standaard.be/cnt/dmf20151130_01998091.
8. Wise Nederland. n.d. “Kerncentrale Doel, België.” <https://wisenederland.nl/kernenergie/kerncentrale-doel-belgie>
9. <https://www.omroepzeeland.nl/nieuws/100795/Belgische-professoren-vinden-Doel-te-onveilig-om-actief-te-blijven>
10. https://www.standaard.be/cnt/dmf20170903_03051348
11. Boholm, Åsa. 2003. “The Cultural Nature of Risk: Can There be an Anthropology of Uncertainty?” *Ethnos*, 68:2, 159-178.
12. BBC. 2016. “All Belgians to be Given Iodine Pills for Nuclear Safety”. <https://www.bbc.com/news/world-europe-36157806>
13. <https://www.omroepzeeland.nl/nieuws/100795/Belgische-professoren-vinden-Doel-te-onveilig-om-actief-te-blijven>
14. <https://fanc.fgov.be/nl/dossiers/kerncentrales-belgie/actualiteit/sabotage-van-de-stoomturbine-van-doel-4>
15. <https://www.demorgen.be/nieuws/zo-simpel-is-inbreken-in-doel-anja-hermans-deed-het-12-keer~b8639037/>
16. World Nuclear News. 2020. “EU Green Deal Ignores Its Own Biggest Clean Source of

- Energy.” <https://www.world-nuclear-news.org/Articles/EU-Green-Deal-ignores-its-own-biggest-clean-energy?feed=feed>
17. Stop Tihange & Doel. n.d. “Doe Mee en Word Lid!” (“Join Us and Become a Member!”) <http://www.stop-tihange.org/nl/contact/>
 18. Avaaz. February 3, 2016. “Belgium: Stop the Next Chernobyl.” https://secure.avaaz.org/campaign/en/belgian_nuclear_shutdown_loc/
 19. DW. 2018. “Activists File Charges Against Tihange, Doel Nuclear Power Plants”. <https://www.dw.com/en/activists-file-charges-against-tihange-doel-nuclear-power-plants/a-43484481>
 20. Sonabend, Françoise. 1993. “Au pays de la peur déniée”. *Communications*, 57, 121-130.
 21. Wolde, Ellen van. “Van Wolde wil vooral goed lezen.” *Trouw*, December 23, 2009.
 22. Giddens, Anthony. 1991. *Modernity and Self-Identity*. Cambridge: Polity Press.
 23. Beck, Ulrich. 1992. *Risk Society: Towards a New Modernity*. London: Sage Publication.
 24. Foucault, Michel. 1978. *The History of Sexuality*. Translated from the French. London, Penguin edition.
 25. Petryna, Adriana. 2013. *Life exposed: Biological citizens after Chernobyl*. Princeton, NJ: Princeton University Press.
 26. Brown, Kate. 2019. “Learning to Read the Great Chernobyl Acceleration: Literacy in the More-than-Human Landscapes.” *Current Anthropology* 60(S20): S198-S208.
 27. Petryna, Adriana. 2018. “Wildfires at the Edges of Science: Horizoning Work Amid Runaway Change.” *Cultural Anthropology* 33(4): 570-595
 28. Brown, Kate. “The Illicit Spelunker Capturing Underground Scenes at Chernobyl.” *Atlas Obscura*, April 26, 2016.
 29. <https://fanc.fgov.be/nl/dossiers/wat-radioactiviteit>
 30. Hijiya, James A. 2000. “The *Gita* of Robert Oppenheimer.” *Proceedings of the American Philosophical Society*, 144:2