HALF LIVES AND BARE LIFE:

AN INFORMAL GEOGRAPHY OF CHERNOBYL

By

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Abstract

Beyond the half-lives, Exclusions Zones, and official imaginaries of nuclear risk, exists an informal geography of Chernobyl. This thesis explores what it is like to live with nuclear disaster. It reveals how people have developed informal coping tactics and local risk understandings that defy formal constructions of nuclear space, and help resist de facto state abandonment. This project involved in-depth ethnographic research with marginalised communities who live in the contaminated landscapes around the Chernobyl Exclusion Zone in Ukraine. Qualitative approaches including participant observation, photographic methods and semi-structured interviews were conducted with participants including liquidators (cleanup workers), border guards, evacuees, returnees, 'Chernobyl widows', farmers and many other people impacted by the disaster's contested nuclear geography.

The thesis reveals how Chernobyl's constructed landscape is produced through a negotiated process of 'nuclearity' (Hecht 2012). The research posits that alongside formal spatialisations of Chernobyl – such as its 'Exclusion Zones' - are a spectrum of unofficial understandings of space and risk that contest this top-down and 'strategic' geography of nuclear disaster (de Certeau 1984). It demonstrates that these alternative nuclear understandings help people assert agency and oppose the status of post-atomic 'bare life' (Agamben 1998). Utilising theorisations of power and resistance offered by de Certeau (1984), the thesis uncovers the hidden geography of informality, local knowledge and place attachment that allow people to resist the 'stealthy violence' (Li 2009, 67) of abandonment and perform their own alternative narratives of nuclear space. This thesis contributes to discussions of Agamben within geographical discourses, and advances understandings of informality in the context of post-socialist marginalisation and landscapes of risk.

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A sketch of some of the doctoral researchers at GEES by Deyala Altarawneh.

Publications

Research from this thesis has thus far been published in two peer reviewed journal articles, a book chapter (forthcoming June 2015), and a newspaper article. Where appropriate the thesis will notify the reader as to which sections have already been published.

Please also find the following publications printed in full in the appendix of the thesis:

Davies T. (2013) 'A Visual Geography of Chernobyl: Double Exposure'. *International Labor and Working-Class History* Vol. 84 pp116-139

Davies T. and Polese A. (2015) 'Informality and Survival in Ukraine's nuclear landscape: living with the risks of Chernobyl'. *Journal of Eurasian Studies* Vol. 6 No. 1 pp34-45

Davies T. (2015 in-press) 'Nuclear Borders: informally negotiating the Chernobyl Exclusion Zone' in Morris J. and Polese A. [eds.] *Rethinking Informality: the embedded nature of post-socialist informal economic practices*. Palgrave: London

Davies T. (2014) 'Ukraine's other crisis: Living in the shadow of Chernobyl – where victims receive just 9p a month and are left to fend for themselves' [27.4.14] *The Independent Newspaper* (lead cover story)

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Chapter 1: ***Introduction***

1.1 Prelude

March 12th 2011, a village near the main entrance to the Chernobyl 'Exclusion Zone': The car radio had stopped playing its usual offerings of electro-pop as a newsreader interrupted the broadcast. The words '*Yaponiya*' (Japan) and '*atomny*' (nuclear) could just be heard above the static crackle - the reception was never that reliable in this part of Ukraine.

I didn't understand, so retuned the dial:

'*...Reports suggest that the nuclear meltdown in Japan could be another Chernobyl…*'

I got out of the car. Was this really happening? I had never heard of 'Fukushima' before, much as I suspect the world would not have heard of Chernobyl, had the local nuclear power plant – near to where I was standing - not gone into catastrophic meltdown in 1986.

I had spent the previous week interviewing people who live in the contaminated landscape around Chernobyl, much as I did for long stretches between 2010 and late 2013. My head (and voice-recorder) was full of their stories of life after nuclear disaster, daily struggles on the edge of 'The Zone', the threat of forced evacuation, the uncertainties, the sickness and deaths of friends and family. I had been fed delicious home-grown food offered to me by kind old women and friendly villagers, willing to talk with this strange outsider. In my bag were a bundle of disposable cameras that I had given to research participants during a pilot study in late 2010. The film inside the 'Kodak Fun Flash 39' cameras was undeveloped, containing images that they had made over the last few months, photographs that I hoped would give an insider perspective on Chernobyl, and form the start of an ongoing dialogue.

Standing by the car, in a village near Chernobyl - the radio crackling in the background - I had a very small sense of the confusion and unease that many people here felt after the disaster. What was the

future for Japan? I thought. What was happening? Looking across a field past a few abandoned wooden houses, I could see the contaminated Exclusion Zone beyond. Was this the future?

1.2 Introduction

> "*Honey, be sure and watch the stove when you add a log tonight. The damn thing nearly Chernobyled this afternoon." You wouldn't know it from the things people write or say about my dad these days, but he could be very funny. My mom, too. They could both be very funny.*
>
> *I guess that's why I use "Chernobyl" like a verb.*
>
> *I don't use Fukushima or Fukushima Daiichi like verbs.*
>
> *But I could. After all, Fukushima had a pretty fucked-up end, too. And it even sounds a bit like a swear*"
>
> - from '*Close your Eyes, Hold Hands: A Novel*' by Chris Bohjalian (2014)

From physics to fiction, much has been written on Chernobyl. Just five years after the disaster, scholars of the catastrophe were forced to acknowledge it had 'given rise to an enormous volume of governmental and corporate studies, scholarly and popular books and articles' (Potter & Kerner 1991, 1027). Chernobyl is well trodden academic terrain, at least by scholars of the hard sciences. Any scholarship of Chernobyl has to share its limited limelight with almost 20,000 other academic texts that mention the disaster in their title,[1] along with the five or six new papers that land in my inbox each week courtesy of Google's *Scholar Alerts*. Each new offering fills me with a minor panic, that I might open the email to find a recently published paper on Chernobyl that draws similar conclusions to my own.

Chernobyl has been described by countless commentators as a catastrophe, disaster or meltdown - or more specifically an 'anthropological shock' (Beck 1988), 'technical error' (Handl 1988), 'nuclear-

[1] As of October 2014, Google Scholar shows that 19,800 academic texts have 'Chernobyl' in their title, and a search for papers that mention the word 'Chernobyl' at least once produces "about 212,000 results".

political crisis' (Czada 1990), 'transboundary accident' (Petryna 1998), or 'Soviet disaster' (Downer 2013, 298). It is doubtless all these things, and much more. Beyond academia, Chernobyl provides the virtual backdrop for computer games such as '*Stalker: Call of Pripyat'* (2007) and is the playground for countless 'thanatourists' (Goatcher & Brunsden 2011) who flock to the Exclusion Zone, to reproduce the same 'ruin porn' photographs as they trample across the Zone's broken glass, gazing upon the frozen 'other' of communism (Davies 2013).[2] The disaster has penetrated our popular imagination (Falkof 2013), it is the star of fiction, film and documentary; at once a geographic place and a temporal (and ongoing) event; both a specific nuclear accident and a far reaching metaphor. Chernobyl can even be used, as the preceding literary quote suggests, as a *verb*.

Chernobyl – it must not be forgotten – is also a lived reality for thousands of people who dwell in its official nuclear landscapes, who navigate the contours of its contaminated nuclear spaces, and live with the unknowable risks of radiation, as well as the memories of displacement, illness, and bereavement. A population who, despite the disaster's interest within the life-sciences, has received relatively little social science attention, least of all from human geographers. The experience of this group, who dwell on the edge of a contaminated and exceptional landscape has been little researched, despite the disaster's unprecedented scale and ongoing consequences. Living on territory officially contaminated by the nuclear accident is a reality shared by 2.15 million people in Ukraine (Ministry of Emergencies of Ukraine, 2011, 42), a population larger than that of Latvia. A generation after Chernobyl the disaster's impacts remain open-ended, and the toxic Soviet inheritance accounts for 5-8% of Ukraine's annual state budget (Oughton et al 2009; Stone 2012; Danzer & Danzer 2014). The nuclear disaster is different things to different people, but here - for me at least - it is the starting point of my thesis.

1.3 Research Focus

The broad aim of this thesis is to understand everyday lives within the nuclear landscapes of Chernobyl and to explore the ways in which nuclear spaces have been socially constructed and

[2] Chernobyl tourism is not the focus of this thesis - for more detailed studies see Goatcher & Brunsden (2011), Yankovskaa & Hannam (2013) and Rush-Cooper (2013).

informally negotiated. The thesis explores the ways people have come to understand the risks of living in a place associated with death and pollution, and aims to investigate how these technological risks intersect with people's relationships with place, and the informal economy. The lived experience of Chernobyl takes place within the wider context of post-Soviet transformation (Morris & Polese 2013), and can be set within literatures focussing on marginalisation in Eastern Europe (Pavlovskaya 2004; Smith & Stenning 2006; Round et al 2008). But beyond this, Chernobyl is a case-study of the capacity for individuals to cope despite dire environmental conditions and de facto state abandonment (Gilbert & Ponder 2014). To explore this theoretically, the thesis draws together the work of Agamben and de Certeau, utilising their divergent framings of power and resistance, and exploring how they can be complementary.

Empirically, the thesis employs qualitative research techniques with people directly affected by the Chernobyl nuclear accident. Participant observations, visual research methods and interviews were conducted with evacuees, border guards, clean-up workers (liquidators), Chernobyl widows, local mayors and people living in close proximity to the fence that divides the Exclusion Zone from the rest of Ukraine. The primary site of research was the rural region near to this nuclear border, with communities who live in this officially contaminated landscape. Qualitative research was also conducted within the Exclusion Zone itself and in other parts of Ukraine, including Kyiv and western Ukraine's Chernivtsi.

It is beyond the scope of this thesis to provide a definitive account of the health impacts of Chernobyl, which are widely contested, and as explained in the next chapter, may never be fully understood. Nevertheless the thesis, while acknowledging that radiation is a very real (though widely debated) hazard to human health, is concerned with the *lived experience* of nuclear risk (Thompson et al 1998). In other words, this research is especially interested in how local people have come to construct and understand the threats of living with Chernobyl. These risk understandings may differ from those of the official scientific and spatial governance of Chernobyl, but through engaging with these narratives of health, revealing Chernobyl's 'popular epidemiology', we can move towards understanding the 'everyday' (Burawoy 1998, 5) experience of nuclear disaster. Following Douglas (1961), these

constructions can help build an understanding of wider attitudes to space and society, and how place attachment and identity interact. This builds on the idea that environmental risks such as Chernobyl should be understood beyond the narrow confines of official scientific narratives (Wynne 1996).

Informality, both in terms of informal economic activity, but also unofficial understandings of Chernobyl, is also central to the research. The way informal activity is employed by people near Chernobyl is uncovered, revealing how such coping tactics, which often occur beyond the view of state governance, help people navigate their environmentally and economically marginalised circumstances. This is framed in terms of agency, with the thesis uncovering how informality, risk and place are utilised to help marginalised individuals resist dominant power structures.

1.4 Thesis Outline

The theoretical framework has emerged in an iterative and reflexive manner, in part aided through the use of research diaries that allow the borders between 'the field' and elsewhere to be productively blurred (Katz 1994). The thesis is split into seven chapters and following this introductory section, **Chapter 2** critically discusses the main literatures that the thesis subsequently employs and develops. This includes Agamben's notion of 'bare life' (1998), which is life stripped of political and legal status, where certain groups can be expelled from sovereign protection and allowed a 'death without consequence' (Doty 2011, 610). The chapter also discusses the idea of 'stealthy violence' (Gilbert & Ponder 2014) and situates the research through the lens of 'everyday life', as pioneered by Lefebvre (1971) and de Certeau (1984). This includes a discussion of de Certeau's concept of 'tactics' and 'strategies' (ibid) which is utilised throughout the thesis to theoretically frame power relations in Chernobyl, building upon previous uses of de Certeau (Hubbard & Sanders 2003; Round et al 2008). The chapter also locates this research within preceding studies of the nuclear disaster, providing a detailed discussion of various approaches to risk research. This includes the contributions made by Mary Douglas (1961) towards understanding the cultural construction of pollution, dirt, and risk.

Chapter 3 provides a critical account of the methodological approaches that helped create the data for the thesis. Following calls for more emotional honesty about the messiness of research (see Kay &

Oldfield 2011), the chapter reflexively engages with some of the mistakes and challenges encountered during the ethnographic research in Ukraine - this helps to justify the qualitative approach taken. Interrogating the unboundedness of the field (Katz 1994) the chapter also discusses how my own positionality and 'outsiderness' impacted (and at times aided) the fieldwork process, as well as how these roles were 'performed'. The qualitative research methods are discussed, including photographic methodologies which provided a useful way of approaching, discussing, and framing the research.

The following chapter **Chapter 4** begins the main empirical investigation. It outlines how the official nuclear spaces of Chernobyl came into being, exploring how Soviet and post-Independence Ukraine carved up the exceptional landscape between 'clean' and 'dirty' territory. Utilising Gabrielle Hecht's (2012) post-colonial idea of 'nuclearity' (also discussed in Chapter 2), it is posited that the formal geographic spaces of the Exclusion Zone (and the other 'Zones' of Chernobyl) were *negotiated* into existence, involving processes that extended beyond mere technological and scientific measurements of spaces and bodies. Towards the end of the chapter, de Certeau's theorisation of the 'strategy' is used to articulate the official Zoning of nuclear space. This qualifies the central tenet of the thesis that this formal framework provides only the 'abstract grid' (Brenner & Elden 2009, 367) upon which the more nuanced *messiness* of everyday life (and unofficial understandings of Chernobyl) can take place.

Moving the discussion forward, **Chapter 5** looks at the way Chernobyl is negotiated in everyday life, paying special attention to the informal economic activity that occurs around the Exclusion Zone. It positions these activities in terms of de Certeau's tactics of resistance (1984) and locates informal behaviour as a key way that people who live with the consequences of Chernobyl can renegotiate their abandoned status. Chernobyl affected citizens are framed as 'bare life' (Agamben 1998), with the chapter revealing the inadequate Chernobyl-welfare system, which despite its thin facade of providing help, actually exposes people to the stealthy violence of de facto abandonment. Framing the Zoned geography of Chernobyl as a 'space of exception' (Agamben 2005) the chapter looks at the way informal activity, including the illegal extraction of scrap metal from the Zone, provides unofficial ways of enacting agency within these highly controlled nuclear spaces. Finally, Chapter 5 reveals

how an engagement with de Certeau's theorisation of resistance enables a new reading of Agamben's notion of bare life.

Chapter 6 explores in-depth the risk understandings for people who live near Chernobyl. Foregrounded by discussions of de Certeau and Agamben, the chapter builds on chapters 4 and 5 to uncover how the concept of risk fits with the picture of abandonment and resistance. It outlines the 'popular epidemiology' of health risks that form people's relationship with place. However, it also demonstrates that these risk understandings are extremely nuanced and complicated, with - for example, relocation welfare being rejected in favour of the certainties that the intimate local knowledge of place guarantees. Drawing upon Douglas (1961) and the notion of 'dwelling' (Heidegger 1971), the chapter situates environmental risk understandings within the wider framework of post-socialist marginalisation, and reveals the role of (im)mobility in enacting agency within these risky landscapes.

Finally, **Chapter 7** summarises the main empirical findings of the thesis, before discussing the theoretical contributions that the thesis makes. From a theoretical standpoint, new perspectives are provided on the use of Agamben and de Certeau to understand space and power. Contributions are made to a growing scholarly focus on informality, especially the importance of the informal economy in post-socialist space.[3] Furthermore, this project contributes to understandings of how nuclear spaces are created and interpreted in everyday life, adding to debates on risk and place in polluted landscapes.[4] Empirically this involves providing the first in-depth look at the lived realities of Chernobyl through the experiences of those most affected by its nuclear geography. Finally the thesis makes methodological contributions to debates on visual methods in ethnographic research.[5] Combining seemingly disparate themes such as informality, risk, nuclearity, bare life and 'everyday

[3] An article from this thesis has recently been published in a special issue of the *Journal of Eurasian Studies* on 'Informality and Welfare in Eurasia' (Davies & Polese 2015). The thesis research will also appear in a book chapter (Davies 2015 in-press), in an edited Palgrave collection titled 'Rethinking Informality: the embedded nature of post-socialist informal economic practices'.

[4] These aspects of the research have been presented at various conferences and presentations in London, Tokyo and Kuala Lumpur (Davies 2011, 2014). The process of discussing research in these formalised academic spaces has been a useful process in forming ideas throughout the research.

[5] Aspects of the thesis have also been published in the interdisciplinary journal *International Labor and Working Class History* titled 'A Visual Geography of Chernobyl: Double Exposure' (Davies 2013)

life', this thesis provides new insights into the ongoing disaster of Chernobyl and also forwards congruent literatures in human geography, area studies, and beyond.

The major contribution of this thesis to human geography is to offer a radical new reading of Agamben's ideas of 'bare life' (1998) by combining his themes with de Certeau's ideas of resistance (1984). Through a new reading of both theorists, specifically their conceptions of power, resistance, and exclusion, the thesis moves the literature forward, and opens up the use of Agamben beyond the confines of 'the camp'. The thesis produces an original synthesis that allows Agamben's ideas to be extended beyond their usual focus on people situated outside the state's protection. The thesis makes a significant contribution empirically by detailing the first in-depth ethnographic exploration of the Chernobyl accident from a human geography perspective, utilising 'thick description' throughout. In addition, the thesis extends various themes from the literature on post-socialism, especially on survival strategies and informal economies.

1.5 Interlude: Gorbachev Speaks



Figure 1: *The exact moment President Gorbachev announces Chernobyl on national television. This footage was later broadcast by the ABC News 'World News Tonight' program. Screenshot taken from youtube (ABC News 2012).*

"*We were recently stricken by a disaster: The Chernobyl nuclear power accident"* said President Gorbachev during a live address on the Soviet Central Television programme '*Vremya'* ['Time']: *'It deeply affected the Soviet people and disturbed world opinion*' he continued, looking down at his piece of paper and breaking 18 days of official silence and state denials [**Figure 1**]. Swedish scientists at Forsmark Nuclear Power Plant were the first outside the USSR to notice the worryingly elevated levels of radiation, so high above background levels that they immediately assumed it must be one of their own reactors. It took just days for the plume of radiation to travel silently north across Belarus, Poland and the Baltic States before invisibly swirling its way across vast areas of Western Europe and large parts of the Northern Hemisphere (Yablokov & Nesterenko 2009). The exact geographical

location of the radioactive leak remained unknown, the nuclear industry being so closely embroiled with cold-war politics that it was shrouded in secrecy (Petryna 2002).

Eighteen days earlier, nine year old Sergei, who I would later meet as an adult in downtown Kyiv, drew back the curtains in his bedroom. It was the middle of the night but his father, who worked as an engineer on 'Reactor Number 4', had received an urgent call: something about an emergency. His father knew they were running tests on the reactor, but he was not on night duty that week. Sergei and his dad looked out the window of their apartment in Pripyat: '*I remember you could see the building burning'* said Sergei *'It was one and a half kilometres away. It was a really big fire'*. He explained how his school friend was even more inquisitive: '*the same night as the reactor exploded, he went to the station by bicycle. No one told us anything. And he just went right up to the reactor which was burning, on his bicycle'*

What they were witnessing was the worst nuclear accident in history. At 1:23am that night, a culmination of human error and poor reactor design (Snell 1988) lead to huge quantities of radiation to be discharged from 'Lenin Reactor Number 4',[6] eventually covering 14% of Ukrainian territory (Phillips 2008). An uncontrollable fire burnt for ten days, spreading radiation six to ten kilometres into the atmosphere and heavily contaminating the local landscape. The fire continued to burn for so long despite helicopters dropping 5000 tonnes of sand, clay and lead onto the reactor core, which it would later be theorised as actually exacerbating the problem, acting like a pressure cooker and increasing core-temperature (Petryna 2002). Despite the ongoing emergency, the day after Sergei saw the fire, his day started like any other:

> *'We went to the school and had normal morning exercises outside. But after a few lessons we went home a bit earlier than normal. But no one told us anything. I went fishing after school. My father already knew that the reactor was blown, but he did not know how serious it was."*

[6] Research using previously classified KGB files suggests the accident at Chernobyl in 1986 was not an isolated anomaly but part of a questionable safety regime that echoed another serious nuclear accident in 1982 (Marples 2004).

That evening his father shut all the windows in the apartment '*to stop the dust getting inside'*, but they were still left in the dark. Different kinds of radioactive particles were being emitted from the burning core, filling the air and settling down across the post-nuclear landscape – a region of forests, rivers and collective farms, transforming invisibly through environmental 'bucolicide' into one of the most polluted places on earth. The half-lives of each particle ranged from 1.4 hours (Zirconium-95) to 24,400 years (Plutonium-239), creating a temporal and geographic disaster of a scale inconceivable by previous standards. Iodine-131 particularly, with a half-life of eight days, would become responsible for a huge increase in thyroid cancer,[7] and could have been avoided if the authorities had provided cheap potassium iodine tablets to the local population (Petryna 2002). As discussed in the next chapter, the scale of the health impacts is highly debated, but it is undeniable that many mistakes were made.

The population of Pripyat would finally be evacuated 36 hours after meltdown (Todkill 2001). They were told only to pack minimal belongings, and that it was a temporary measure. Sergei's father, increasingly aware of the seriousness of what was unfolding, knew otherwise. Within hours a city of just less than 50,000 people was empty, an exodus echoed over the next weeks, months and years by a further 300,000 people who were evacuated from the (predominantly rural) contaminated spaces across north-central Ukraine, southern Belarus and small areas of Russia (Ministry of Emergencies of Ukraine 2012). The next day the newspaper *Pravda Ukrainy* ran a vacuous cover story about two pensioners wanting a telephone line installed in their apartment, burying the breaking story of mass evacuation, panic and nuclear disaster at the bottom of page three (Marples 2004).

Sergei's family would be transferred to different locations in the USSR, before being resettled permanently in Kyiv. '*You can't imagine how stressful everything was*' Sergei emphasised, and suggested it was dislocation that had driven his father to alcoholism. His parents, both of whom worked at the power station, knew many of the workers who would soon die from acute radiation sickness:

[7] As a case in point, Sergei's sister was diagnosed with thyroid cancer, becoming *'seriously ill for a serious amount of time'*.

> *"My mum went to Moscow and saw all these people who were getting cleaned from radiation. But it was difficult to say that these people were human because they were without skin"*

The huge-scale evacuation, widespread fear and uncertainty and thousands of stories of loss and bereavement were just beginning. '*The worst is now behind us'* said Gorbachev less than three weeks after the accident, again glancing down to the sheet of paper in front of him. For the hundreds of thousands of people exposed to the consequences of Chernobyl, this was not to be the case.



Figure 1.1: *In his flat in Kyiv, Mr Krasilnikov – a former liquidator – holds a photograph of the Chernobyl sarcophagus that Sergei saw burning from his bedoroom window in April 1986. 'Since Chernobyl made me wheelchair bound in 1992, I have dedicated my life to writing about the accident,' Mr Krasilnikov tells me 'Please show these photographs in Britain'. Photograph by Alexey Furman. The reflections of myself and my friend Alexey can just about me seen in the TV screen.*

Chapter 2: ***Literature Review***

2.1 Introduction

This chapter will introduce and discuss the important literatures that the thesis will use and develop. Due to the nature of this research, which covers diverse themes relating to the lived experience of Chernobyl, a literature review that speaks to these apparently divergent ideas is required. Literature discussing concepts such as risk, bare life, and informality will be included, as well as contextualising literature on marginalisation in post-socialist Ukraine and existing Chernobyl-specific scholarship. The chapter will start with an introduction of Agamben's concepts of bare life and the state of exception, before discussing the *letting die* 'stealthy violence' (Li 2009, 67) of abandonment. After suggesting that Agamben's ideas of power and sovereignty leave insufficient room for resistance or challenging dominant power structures, de Certeau's notion of 'tactics' and 'strategies' are introduced in relation to agency and power (1984). The chapter will then present a detailed discussion of risk literature where it will also outline why the death toll from nuclear disaster is so difficult to accurately predict through a realist epidemiological approach. In relation to radiation, it will emphasise the culturally constructed notion of dirt and pollution pioneered by Mary Douglas (utilised in Chapter 6 of this thesis), and the often underestimated importance of local knowledge (Wynne 1996), which will be connected to Heidegger's notion of dwelling (1971). Practices of 'everyday life' as a lens for investigation will be discussed and critiqued before a discussion of informality in post-socialism, including the importance of social networks and self-provisioning. The chapter ends by outlining notable social science contributions to research on Chernobyl before introducing the concept of 'nuclearity' (Hecht 2012), which will be useful when revealing the 'construction' of nuclear space in Chapter 4.

2.2 From Agamben to de Certeau

> 'Lives lived on the margins of social, political, cultural, economic and geographical borders are lives half lived. Denied access to legal, economic and political redress, these lives exist in a limbo-like state that is largely preoccupied with acquiring and

> sustaining the essentials of life. The refugee, the political prisoner, the disappeared, the victim of torture, the dispossessed – all have been excluded, to different degrees, from the fraternity of the social sphere' (Downey 2009, 109).

Inspired by the work of Carl Schmitt, the philosopher Giorgio Agamben argues that the State's ability to step inside and outside the judicial order defines its sovereignty. In other words its power to 'include' and 'exclude' certain biopolitical life. Agamben suggests that the withholding of the rule of law and denial of state-protection, in a 'state of exception', is integral to the modern biopolitical order (2005). The state's ability and willingness to place some individuals outside its legal protection is fundamental to its sovereignty. As Schmitt says, the sovereign is 'he who decides on the state of exception' (Schmitt 1922 in Agamben 1998).

By placing the power to chose which individuals are, and which are not protected at the heart of sovereign authority, Agamben sets up 'spaces of exception' as the ultimate expression of sovereign power. The symbolic place he uses as the paradigmatic example of this process is the 'camp', which he describes as 'the pure, absolute, and impassable biopolitical space of modernity' (Agamben 1998, 123, in Elden 2006, 482). The two most cited examples of the camp he provides are 'Camp X-ray' prison in Guantanamo Bay and the Nazi concentration camp at Auschwitz. In both instances he describes how individuals are metaphorically 'made naked' and reduced to 'bare life' (Agamben 1998); bodies devoid of legal protection who become 'life reduced to biological existence stripped of every political status' (de Dardel 2013, 8). Agamben uses the idea of bare life to reveal how the state's power to govern is linked to its ability to *exclude* groups and individuals from the workings and protection of the law.

This state or 'space of exception is typically produced through the declaration of a state of emergency that becomes grounds through which sovereign power constitutes and extends itself' (Gregory 2006, 407). This thesis will explore the idea that Chernobyl has produced a state of exception in Ukraine,

the principal site or paradigmatic 'space' of that exception being the *Exclusion Zone*[8]. It will show that people affected by Chernobyl have been recast as post-nuclear 'bare life'; individuals who have been stripped of adequate state protection and legal status; who have been exposed and reduced to vulnerable biological (but not political) life.

2.2.1 *Stealthy Violence*

Gregory describes how the 'space of exception' creates a 'boundary between politically qualified life and merely existent life exposed and abandoned to violence' (2006, 405). However, the type of violence that bare life is subjected to can vary and must be interrogated. Biopolitically, Chernobyl and its governance has inflicted the affected population to a form of 'stealthy violence' (Li 2009, 67 in Gilbert & Ponder 2014, 3). This is not an active physical violence against a group of citizens such as in war, genocide, or police brutality, but a silent and unseen 'double exposure' (Davies 2013, 1) which is the compound wounding of harmful-radiation and poor governance. Gilbert and Ponder (2013) discuss the distinction between the extreme violence of actively '*making die*' (ibid, 10) such as the 'thanatopolitics' of genocide (Foucault 2003), and the more passive yet equally harmful notion of '*letting die*' (Gilbert & Ponder 2013, 3). This subtle but important distinction between 'making die' and 'letting die' violence (of abandonment) allows us to extend Agamben's notion of bare life beyond the specific and enclosed spaces of exception such as the 'camp', and permit us to see bare life in wider spaces of society that normally remain invisible. As Tania Li suggests:

> '(l)etting die is not an apocalypse. It is not a media event, like a massacre...it is a stealthy violence that consigns large numbers of people to lead short and limited lives' (2009, 3).[9]

The 'stealthy violence' of 'letting die' corresponds closely to Agamben's idea of bare life, where excluded and vulnerable citizens are reduced to mere biological continuation, devoid of the care and

[8] This is also in line with Kaur (2013) who's work on the Indian nuclear power stations suggests that *any* form of nuclear technology or industry is inherently bound up with a normalized 'state of exception'.

[9] I would nuance this further to say that 'letting die' *can* be media events, in as much as anniversaries of tragedies become brief visual memorialisations that momentarily shed light on bare life once a year, only for bare life to fade back into obscurity thereafter.

protection of the state: 'not just exiled, killed, and disposed with, but left to suffer in agonizing circumstances that are normalized through law' (Gilber & Ponder 2013, 4). It also hints at a growing move in human geography and other disciplines to challenge the localizable, bounded and determinate conceptualization of bare life and the state of exception (Belcher et al 2008; Ramadan 2012; Gilbert & Pondar 2013; de Dardel 2013). 'Letting die' also references how individuals in bare life may not be subject to the most *extreme* forms of violence such as those of Nazi death camps, but are victim to a spectrum or continuation of harm that is 'essentially unlocalizable' (Belcher et al 2008, 500).

With this reading of violence, we can use Agamben's idea of bare life to include populations who have been abandoned and denied state protection (Li 2009, Gilbert & Ponder 2013). This form of abandonment by the state fits the 'in-between space' (de Dardel 2013, 8) that Agamben describes, of individuals being paradoxically *inside* and *outside* the political order in a state of exception; of 'being outside, and yet belonging' (Agamben 2005, 35). As Pratt explains, this is because individuals who are 'abandoned remain in a relationship with sovereign power: included through exclusion' (2005, 1054). The liminality of neither being completely 'included' nor totally 'excluded' from biopolitical life will be developed in the thesis, to discuss how individuals are able to negotiate their own status, navigating the borders of the state of exception - often able to transgress or crossover the boundary between mere-biological 'bare life' and a fuller citizenship; negotiating their biopolitical status through formal and informal means. This often involves local understandings of radiation risk that is at odds with formal governance strategies.

Achille Mbembe's (2003) interpretation of Agamben's bare life is also apposite. For Mbembe, it is not the 'camp' that forms the paradigmatic state of exception, but colonial spaces of slavery – where he describes how large numbers of people were exposed to terrible circumstances that produced 'the status of *living dead*' (cited in Gilbert & Ponder 2013, 4); bodies that were permanently wounded yet not killed (Stratton 2011). This conceptualization of bare life creating permanently 'wounded bodies' (Gilbert & Ponder 2013, 4) has resonance with the radiological damage that huge numbers of people in Ukraine claim to have suffered. The permanent 'wounding' of a population through this stealthy violence of abandonment has produced what Agamben refers to as the 'the living dead man' (1998,

131) – forsaken individuals who have suffered the long-term cocktail of radiation and abandonment – who now merely 'eke out their existence as the not-yet-dead, who have simply been left to die' (Gilbert & Ponder 2013, 4).

2.2.2 *The power of the 'Strategy'*

As suggested earlier, people in bare life need not be considered as mere passive victims. To understand how they may *resist* sovereign power within a state of exception we must first appreciate how spaces are controlled, and for this it is useful to look at the work of de Certeau (1988). Though some scholars have made passing reference to de Certeau in relation to Agamben (de Dardel 2013 and Kaur 2013), there has so far been little critical engagement with how these two theorists may complement each other, perhaps providing a new framework to understand 'bare life' - particularly if we look at de Certeau's ideas of tactics and strategies (1984).

To paraphrase de Certeau 'the strategy is the art of the strong' (1984), and comes from the position of power. One of the key characteristics of a 'strategy' - and this is no doubt influenced by the work of Foucault - is its power to dominate and control space through its ability to *see*. De Certeau describes how the 'strategy' can be defined as:

> 'the a mastery of places through sight. The division of space makes possible a *panoptic practice* proceeding from a place whence the eye can transform foreign places into objects that can be observed and measured, and thus control and 'include' them within its scope of vision' (1984, 36 emphasis in original)

In the context of Chernobyl, this emphasis on the control of space through *what can be seen* is very important. In this sense it is the *strategy* of the Ukrainian state of rendering *invisible* radiation 'visible' (or re-making it invisible) through which we can see these strategies of controlling spaces occurring. The zoning and labelling of particular places and human bodies as formally 'nuclear' or 'non-nuclear' is a post-Chernobyl example of a de Certeuian 'strategy', which is inherently interwoven with power and a privileged 'panoptic' gaze. Transforming these sensorally 'foreign places' of radiation into bounded and managed 'readable spaces' (de Certeau 1984) is part of this

strategy of control that de Certeau talks about. The Chernobyl Zone becomes a 'visible, and objectifiable space' (ibid 37); bounded, secure, and eventually 'liquidated'. Radioactive particles become 'objects' that are observed, measured, and mapped; ultimately leading to official and formal definitions of what-*is* and is-*not* 'nuclear' (Hecht 2012). This process of controlling, categorizing and zoning nuclear space and 'nuclear individuals' can be framed in terms of de Certeau's concept of the strategy (see Chapter 4). This 'mastery of places through sight' (de Certeau 1984, 36) and the ability to observe the unobservable is strategically demonstrated through post-Chernobyl governance. This is made all the more stark when compared to the lay perspective which is obscured, 'lacking the view of the whole, limited by the blindness...(and) absence of power' (ibid, 37). De Certeau describes the strategy as 'the typical attitude of modern science'[10] (ibid) and this can, in terms of risk, be compared with the non-expert perspectives which lack the technology to see radiation and are symbolically made blind (Beck 1986).

A strategy is 'organized by the postulation of power' (de Certeau 1984, 38) and can only be used, de Certeau argues, by those in authority. This can be linked to Agamben's conceptualization of sovereignty, where he puts much emphasis on sovereign power's ability to dominate through the workings of the law. The strategy therefore holds the ability to 'include' (ibid, 36) and by extension also '*exclude*' from the biopolitical order. Clear parallels between the state of exception and de Certeau's idea of strategic governance can be made; both have *power* at their axis.

2.2.3 *Acts of resistance*

A major criticism of Agamben is that he only extends the potential of resistance to within the 'all-encompassing logic of sovereignty' (Kaur 2013), and does not provide scope for bare life to have any meaningful challenge to that sovereign power (de Dardel 2013). He sets up bare life as individuals who have no capacity to defy their legal nudity, as simple bodies or empty vessels stripped of the potential for agency. A growing number of academics, however, within geography and beyond, have begun to question this assumption (Ziarek 2008, Bailey 2009, Ramadan 2012, de Dardel 2013, Kaur 2013). For example, even in Agamben's most extreme paradigmatic example of the space of

[10] The fact that 'science' is not a monolithic singular voice will for the time being be left aside.

exception - Nazi concentration camps – there is evidence that people stripped to bare life still enacted agency, defiance and acts of resistance (Bailey 2009). Indeed, Ramadan suggests that within the modern refugee camp, bare life can in fact be 'far from silenced and disempowered' (2012, 7) and that refugees are able to exert agency of their own. From immigration detention centres (Bailey 2009) to prisons (de Dardel 2013), so-called spaces of exception can be full of active resistance, and 'bare life' can often co-exist with agency.

Kerkvliet argues that there is *politics* in even the most 'everyday' actions, citing the resistances shown by 'peasant societies' in a range of post-colonial contexts (Kerkvliet 2009). In this way the overtly political framings of Agamben (and his critics) can be widened to include day-to-day activity. Henri Lefebvre – a great proponent of practices of the everyday – argues that it is 'irrefutable that public (political) life has penetrated private life, and vice versa' (Lefebvre 1991, 4). For example, James Scott's research on village life in Malaysia draws out 'the political significance of verbal remarks...as well as pilfering, sabotage, and other everyday resistance' (Kerkviet 2009, 233) to show that day-to-day life is rife with 'political' activity - yet this only rarely rises to the surface.

To extrapolate this further, Goffman (1961, cited in de Dardel 2013) describes how there is always an 'underlife' to even the most 'total institution' (ibid) such as the Asylum. This is a space or method of resisting and distancing the oppressed from the oppressor, or in terms of de Certeau (1984) – the tactician from the strategist. So too are there cracks and fissures in the strategies of the state that can be exploited by individuals in the milieu of everyday life, even by people who are consigned to 'bare life'. James Scott takes a performative approach and describes how the 'public transcripts' (1990, 3) of interactions between those with and without power (worker-to-boss, slave-to-master etc) hide a range of 'hidden transcripts' and cloaked meanings that occur 'offstage' (ibid). These performed interactions in private and public space, further suggest that those without power are able to avoid being completely dominated: 'the more menacing the power', Scott argues 'the thicker the mask' (1990, 3). Both the spaces of the 'underlife' (Goffman 1961) and the hidden interactions that take place 'offstage' (Scott 1990) seem to challenge Agamben's all encompassing view of sovereignty. They also complement the notion of 'tactics' which is proposed as a counterpoint to the idea of the

'strategy' (de Certeau 1984). This will be discussed within the context of informal interactions with the Chernobyl Exclusion Zone in Chapter 5.

2.2.4 Tactics

De Certeau uses the idea of 'tactics' to articulate how individuals who lack strategic power negotiate space, positing that a 'tactic is determined by the absence of power just as a strategy is organized by the postulation of power' (de Certeau 1984, 38 emphasis in original). De Certeau's conception of the tactician nods to the apparent panopticism of strategic power while acknowledging that fissures and gaps exist in dominant power hegemonies which those who lack power are able to secretly navigate and exploit. He describes tactics as the 'art of the weak' (de Certeau 1984, 37), with the use of 'art' emphasising the agency and *skill* involved in the struggles of everyday life, which is especially pertinent in relation to the risk practices and informal activities which this thesis will uncover. Tactical practices have a 'capacity not only to elude systematic control by exploiting gaps and niches, but actively to alter and disrupt the systems within which they work' (Sheringhjam 2006, 222). De Certeau makes use of metaphors such as 'poaching' and 'trickery' to develop the idea of tactics, suggesting that those who lack authority are still able to monopolise the 'cross-cuts, fragments, cracks and lucky hits in the framework of the system' (de Certeau 1984, 38); emphasising how there are other levels of agency beyond the dominant controllers of space. De Certeau suggests that the 'tactic' and the 'strategy' provide a theoretical framework for making sense of the complex and entangled way that power is embodied and resisted in day-to-day life.

This is not to glorify or idealize the struggles of the weak. Nor is it designed to underplay the obvious power that sovereignty, the state of exception, and strategies have on bare life. Rather, these conceptualizations of power suggest that although 'sovereignty shapes everyday life' (Nadeson 2008, 35), it is not completely moulded by it. Even for those in bare life, 'there remain spaces of mobilization of hope in-between the air pockets of state and law' (Kaur 2013, 20). Indeed, though 'strategies' may come from a place of power, it is not a *truly* 'panoptic practice' (de Certeau 1984, 36) and those who operate in everyday life using *tactics* are able to weave in-between the holes in the system (and the fence, as described in Chapter 5). Whether it be through localized understandings of

risk (and 'risk practices') that differs tactically from the formal and bounded scientific interpretations of space; or using social networks and informality to subvert Chernobyl's spaces of exception; or utilising a communally constructed sense of place to help plug the gap in a vastly inadequate Chernobyl welfare system; and so on - these behaviours can all be framed in terms of de Certeau's tactics. Yet those who use these tactics, can also be described as bare life. The thesis will uncover how people who have been made legally and politically 'naked, are able to enact agency and tactical resistance to the 'stealthy violence' of abandonment they are exposed to. It will discuss how these tactics are enacted both formally and informally. The thesis will argue that by putting Agamben's (1998) notions of bare life in conversation with de Certeau (1984) we can provide a framework through which agency and bare life are not mutually exclusive.

Henri Lefebvre (2009) suggests there is a fundamental difference between how those with, and those without power perceive and interact with space. In this way his argument corresponds to de Certeau's idea of 'tactics' and 'strategies' (de Certeau 1984). Using examples from French Town-Planning in the 1960s, Lefebvre maintains that spaces are constantly reproduced with a perpetual interaction between opposing strategies (Brenner & Elden 2009, 367). He suggests that:

> *'whereas the state and capital attempt to 'pulverise' space into manageable, calculable and abstract grid, diverse social forces simultaneously attempt to create, defend or extend spaces of social reproduction, everyday life and grassroots control'* (Brenner & Elden 2009, 367)

Lefebvre is implying here that there is a difference between how the state and people in everyday life understand and negotiate space. This in turn can help us understand Chernobyl. The contrast between how nuclear landscapes are governed with their Zones of Exclusion, rules of behaviour and 'calculable' technocratic risk governance can be contrasted with the way Chernobyl is actually 'lived with' in everyday life by those who dwell in its border spaces and beyond. Here, the 'abstract grid' (Brenner & Elden 2009, 367) of the Zone as a space of exception with its 'manageable' and 'calculable' (ibid) risks can be put into sharp relief when compared to the way these spaces are inhabited and negotiated in everyday life.

'***The question of borders becomes all the more urgent***' (Agamben 2005, 1)

As stated earlier, Gregory describes how the 'space of exception' creates a 'boundary between politically qualified life and merely existent life' (2006, 405). This thesis will posit that this boundary is in fact porous, with individuals able to negotiate and trespass this border. Like many borders, this can be done using formal and informal methods. In the same way that the barbed wire fence that surrounds Chernobyl is unable to stop people (or radiation), so too are individuals able to perform 'border-crossing' behaviour in terms of negotiating their biopolitical identities. Individuals are able to enact 'tactical' (de Certeau 1984) agency whilst living in Chernobyl's state of exception as bare life, by negotiating their status as nuclear/non-nuclear subjects in a variety of formal and informal ways.

Through the use of strategies, the state decides where the border lies between what is 'clean and dirty', 'nuclear and non-nuclear', 'protected and abandoned'[11]. The way individuals in bare life chose to negotiate this border will be explored. While positioning the Zone as the paradigmatic space of exception in relation to Chernobyl, the thesis will, like Gilbert and Ponder (2013), aim to move 'beyond the "exceptional spaces" of either the camp or the plantation, back into the ordinariness of everyday life', where struggles over bare life occur within, and, perhaps more interestingly, well beyond, the barbed wire of the official nuclear spaces of the Exclusion Zone. This effort to reach beyond the border follows Cresswell who reminds us that many human geographers such as Massey, Thrift, Seamod and Pred 'have insisted that places should not be thought of in terms of stasis and boundedness but are instead the product of processes that extend well beyond the confines of a particular place' (2004, 50).

2.3 Risk

The technological advancements and consequential environmental disasters of the 20th century resulted in the word 'risk' losing its innocence. The worsd would no longer only be associated

[11] This is mapped out both geographically and socially in Ukraine

with bold adventurers, speculators and rolls of the dice, but instead 'risk' develop new connotations, complications, and even questions of morality (Bernstein 1996; Fox 1999, Douglas 2013).

For such a large and influential concept as risk, there is a 'lack of cohesion' (Brown 2013a, 624) in the way it is theorised. There exists a spectrum of approaches to risk: the realist position, that a risk is a calculable and numerical chance measured through technocratic assessment, such as probability, actuary or epidemiology; psychological approaches to risk which view it as constructed at the individual level (Fischoff *et al* 1978; Hess 2011; Flanquart *et al* 2013); sociological perspectives, which see risk as shared and negotiated within communities and social groups (Irwin *et al* 1999; Leach *et al* 2007; Williams & Balaz 2012); and the structuralist approach which maintains that understandings of risk reinforce social and cultural hegemonies (Douglas and Wildavski 1982; Dake 1992; Rayner 1992).[12] The problem that all of these approaches face is that there is no such ontological *thing* as 'risk' - it is merely the interpretation of hazards in the world around us through various different lenses. Huge advances have been made in the way environmental risk is managed and communicated, and differing approaches to risks often overlap and coincide. The 'knowledge deficit' model for example – that of treating a lay-person as an 'ignorant' empty vessel that simply needs to be 'told the numbers'[13] has increasingly been replaced in the 'reflexive turn' (Chilvers 2012, 284). This encompasses methods such as 'analytic deliberation', the Delphi technique, and citizen juries, that often attempt to integrate a range of perspectives to help communicate risk, as well as incorporate 'lay' knowledges.

Given the choice of approaches to risk, it is important to clarify the position that this thesis will take. From a theoretical standpoint, the thesis will be *realist* about hazard, and *constructivist* about risk[14]. That is to say, hazards such as radiation are definitely 'out there', real, and potentially harmful - but how they are interpreted, 'sensed' and understood by different groups and individuals is a constructed

[12] There is some overlap between structuralist and sociological perspectives.
[13] There are some risks where lay-people are much more willing to simply accept the authority of the expert perspective, for example when receiving medical treatment, with rare exceptions such as the Autism vaccination case.
[14] This follows Thompson *et al* who remind us that 'to embrace constructivism, however, is not to reject science' (1998, 139)

process. This follows the lead from geographers such as Bickerstaff and Walker who, in their research on air pollution state that they:

> 'take a heterogeneous view of constructionism which accepts that air pollution has an ontologically objective existence, but that the conception and classification of it are socially contingent' (2003, 46).

In a similar way, this thesis recognises that radiation has an ontological existence and is an undeniably dangerous hazard (Yablokov *et al* 2009; Nicoll *et al* 2010; Allison 2011; Singh 2011; Ibrahim 2012),[15] yet will also emphasise that the understanding of this danger as a risk to human health is a constructed reality (Kuchinskaya 2010; Hecht 2012) - both from the lay *and* expert perspective. For example, theorists such as Donna Haraway remind us that all knowledge is situated, with only a 'partial perspective' (1988, 575) and a particular 'way of seeing' (Berger 1972). Likewise, Bruno Latour has demonstrated that even at the technocratic and scientific level, knowledge construction is not 'value free'; you cannot separate society from the 'construction of scientific facts' (Latour 1986).

However, it is possible to be *too* constructivist or structuralist when it comes to risk. In a critique of Mary Douglas' anthropological take on pollution (discussed in Chapter 6), Kaprow reminds us that the 'fact that industrial pollution, like other types of pollution, exists in our heads does not negate the fact that it also lies out there' (Kaprow 1985): just because you don't *believe* in something doesn't mean it won't kill you. Recent reflexively critical accounts of the entrenched positions on risk have produced new understandings of how risk can be theorised. Hansson suggests that neither a fully constructivist nor realist approach is tenable because '[r]isk is both fact-laden and value-laden, and it contains both objective and subjective components' (2010, 231). Following this argument, the thesis will emphasise the importance of appreciating how understandings of risk are constructed, while at the same time holding on to the idea that nuclear radiation is a very real, though variously understood, health hazard.

[15] The extent of that danger or rather how this is a constructed and hard-to-measure reality will be discussed in the following section.

2.3.1 *An impossible task? Measuring the health risks of Chernobyl*

It is beyond the scope of this thesis - and perhaps any work on Chernobyl - to accurately estimate the number of people who have been killed or injured by the nuclear disaster. This is for a variety of methodological reasons, which are technical, epidemiological and historical in nature. Technically it is difficult to predict deaths from Chernobyl because the science of mortality prediction for nuclear disaster is based upon research on the Hiroshima and Nagasaki bombings, which involved *high-level*, *short-term* exposure. While the radiation released by the ten day fire at Chernobyl was 'equivalent to 1,000 Hiroshima bombs' (Petryna 1995), the type of exposure differs greatly, and those who suffer from the impacts of nuclear accidents such as Chernobyl and Fukushima face *low-level* (but) *lifetime* exposure, which is difficult to measure and is scientifically undecided.

Historically, the post-Chernobyl population of regions impacted (in Belarus, Ukraine and Russia) was relatively mobile in the years after the accident, making it near-impossible to conduct reliable long-term epidemiological studies on potentially impacted populations. This situation is exacerbated by a lack of accurate Soviet records on the location of exposed and displaced people, in part due to the collapse of the USSR that soon followed Chernobyl, which placed populations (and medical records) across different geopolitical borders.

Widespread epidemiological screening meanwhile – seen as the only way to measure long-term low-level exposure - is limited by two systemic problems. Firstly, populations who live near Chernobyl may be more likely to 'self-report' at the first signs of illness, such as cancer, compared to a 'control' population elsewhere, making studies of whole populations unrepresentative. Secondly, the very act of closely inspecting entire populations in areas associated with Chernobyl is likely to uncover increased cases of illness, compared to the passive screening of whole countries at the national and international level (Moysich et al 2002). As a consequence, the death toll from Chernobyl has become a contested figure (and will remain so), with reliable estimates ranging from a few thousand to near a

million.[16] This thesis will reveal however that the real consequences of Chernobyl extend beyond this unknowable death toll, and well past the confines of its official nuclear spaces, penetrating many social, psychological and economic facets of everyday life (Davies & Polese 2015).

2.3.2 *What is Risk?*

Unlike a radioactive particle, a risk is not an *object* that exists in space and time; it is a constructed possibility. Risk is confined to the imagination of individuals, groups or institutions – it is not 'out there'. As Beck suggests - 'risks are not real – they are 'becoming real'' (2006, 332) i.e. they are a potential:

> 'Nothing is a risk in itself; there is no risk in reality. But on the other hand, anything
>
> can be a risk; it all depends on how one analyses the danger, considers the event'
>
> (Ewald 1991, 199).

Experts often complain that 'the public doesn't realise how small (or large) Risk X is' (Fischoff 2013, 6)[17], but the interpretation and understanding of that risk is not the sole privilege of expert systems. In everyday life, how one analyses a potential threat, especially hazards that evade human perceptive abilities - is closely connected to the cultural and social settings involved (Douglas and Wildavsky 1982; Lidskog 1996; Irwin *et al* 1999; Wall & Olofsson, 2008; Brown 2013b). For example research into how young people perceive risk in rural areas of Sweden suggests that though people make sense of risk differently, they are strongly influenced by social conventions and local normalization (Wall & Olofsson 2008). How people interact with risks can be dependent on social networks and processes, meaning potentially risky behaviours can become normalised. Therefore it has been argued that how one perceives risk is highly dependant upon – perhaps even inseparable from – cultural and social factors (Douglas & Wildavsky 1982; Dake 1992; Rayner 1992; Brown 2013b). Like other imagined geographies, 'risks are culturally constructed. They are viewed through cultural filters' (Lidskog

[16] The IAEA's latest estimate puts the casualty rate at a conservative four thousand, compared to a range of other reports that place the number nearer one million. For varying accounts, see IAEA (2011)and Yablokov et al (2009). Also discussed in Davies (2013)

[17] See for example an article by Jaiki Lee who argues that 'the public's perceptions need to be changed at any cost' (2012, 107)

1996, 35). By extension we can use risk perception as a way of exploring the wider cultural and social situation of a society or group (Douglas & Wildavsky 1982).

The consequences of risk can also be viewed differently from the expert and non-expert perspective, due to the way 'risk' is actually defined. The manner in which people understand impacts from hazards in everyday life are often more *textured* and complicated than simplistic analytical measurements of 'bads'. For example, research from interviews with Australians about risks such as HIV infection found that:

> '*lay people see risks as affecting not just their physical being but also their economic status, cultural identity, home 'memory', relationships with others, social standing or status and emotional or psychological states*' (Tullock and Lupton 2003, 41)

In other words, risks can be viewed as more far-reaching than the flat measure of 'chance of mortality', which is often the approach taken from a purely technical perspective. Indeed Slovic *et al* and their use of the psychometric paradigm found that risks that are more likely to kill you are not necessarily the most feared (Slovic et al 1986). There are a plethora of factors that affect the understanding of risk. Two of the main techniques academics have applied to analysing these factors are through Psychological and Cultural understandings.

2.3.3 *Risk Perception*

Two key approaches to the perception of risk are the 'Cultural Theory' ideas of Douglas and Wildavsky (1982) and the Psychometric Model (1978) pioneered by Fischoff *et al* (Sjoberg 2000a). The former emphasises the culturally specific negotiation of risk and followed Douglas' earlier book 'Purity and Danger' (1966) which argued - through an anthropological lens - that the essence of cleanliness and pollution are deeply embedded cultural constructs. For example she reveals how the concept of 'dirt' can vary from culture to culture:

> 'Dirt then, is never a unique, isolated event. Where there is dirt there is a system.

> Dirt is the by-product of a systematic ordering and classification of matter' (Douglas 1966, 35)

Not only does the concept of dirt vary from culture to culture, but these dirt/pollution/risk taboos reinforce social and cultural hegemonies. As Rayner suggests, '(w)hatever objective dangers may exist in the world, social organizations will emphasize those that reinforce the moral, political, or religious order that holds the group together' (Rayner 1992, 87). Academics such as Rayner, Wildavski, and Douglas suggest that by understanding why something is considered 'risky' we can explore the wider social, cultural and political situation.

In 'Purity and Danger' (1966), Douglas uses the example of the ancient Hebrew text *Leviticus*. It outlines the many archaic laws that forbid the mixing of *categories* in everyday life; from wearing clothes made from two types of material, to eating animals that exhibit taxonomical anomalies (shellfish, pigs etc). These 'Thou-Shalt-Not'-commandments reinforce the separation of objects into distinct categories, and if categories are mixed (or if objects are unable to be categorized) then they become abominations. This, Douglas explains, echoes how ancient Israelite culture wanted to reinforce the separation of their own society from similar neighbouring tribes. Thus the mixing of categories became a taboo or 'dirty' because it went against the cultural norms of the time (Douglas 1966). For example 'since the pig uniquely is cloven-footed but does not chew the cud' (Fardon 2002, 90), it therefore defies simplistic taxonomical categorization and it is seen as dirty, against god, and therefore taboo. Objects and animals that were difficult to easily categorise became culturally 'dirty', Douglas argues, because this emphasised, echoed, and reinforced the determination of early Israelite society to distinguish itself from other tribes.

In a later piece co-written with Wildavski (1982), the example of the Hima tribe in Uganda is used, where it is believed that if women touch their cattle the animal will die. A further belief is that eating milk simultaneously with other agricultural produce such as grains is dangerous. These culturally-enforce risks or taboos, they explain, enforces the 'need and desire of the Hima to maintain the existing sexual division of labour and to prevent encroachments by a neighbouring tribe of farmers'

(Johnson and Covello 1987, ix). In other words the Hima tribe is a very patriarchal and cattle-based society and these risk perceptions have developed to enforce this rigid and highly gendered social structure. The way people understand risks can tell us something about the society in which they live. This will be discussed in relation to Chernobyl in Chapter 6.

While this approach to risk perception can be critiqued for downplaying the agency of the individual to perceive their own risks, it is useful as it allows risk perception to become a lens through which far-reaching social, cultural and political issues can be examined.

2.3.4 *Local Knowledge*

Prioritising the role of the individual, the Psychometric Model is another key approach to the question of risk perception, this time taking on a psychological emphasis. Using Starr's (1969) distinction between 'voluntary' and 'involuntary' forms of risk perception as a starting point, Fischhoff *et al* (1978) found nine categories that they thought would influence risk perception. These include: Immediacy of effect, Knowledge about Risk, Control over Risk, Severity of Consequences, Newness, and Dread. After their participants had rated these nine categories by importance for a wide variety of potential hazards, it was found that by far 'Novelty' and 'Dread' were the key factors (Sjoberg 2003). Since both these factors are closely associated with nuclear radiation, it was seen as an explanation for why nuclear power is such a paradigmatic example of lay-expert tensions in risk theory. However the Psychometric Model has come under criticism for reinforcing the 'sharp dualism between lay and expert perceptions of risk' (Jasanoff 1998, 98 cited in Sjoberg 2003, 9) Furthermore, one could argue that Fischoff *et al* (1978) imply through their study that experts are 'rational' and non-experts are 'emotional and ignorant' (Sjoberg 2003, 9). They also found more generally that public perceptions of risk are far more complex than experts had believed they should be, and therefore require more consideration.

Brian Wynne (1996) on the other hand, revealed how the lay perspective has much to offer official experts when it comes to environmental risk management, primarily because of their local expertise, experience and knowledge. After all, while modern risks may be global, the way they are enacted,

understood and perceived is often rooted at the local level. Demonstrating that 'expertise is not a monopoly of outsiders' (Broto et al 2007, 491), Wynne discusses how local lay people have the ability to provide a rich local account that is potentially very useful in understanding complex risks compared with the traditional view from the Ivory Tower; in effect he demonstrated how the scientific 'strategy' failed by ignoring the more 'tactical' approach of the lay perspective (de Certeau 1984). What non-experts see as obvious can sometimes be missed altogether by experts. Therefore a combined approach that involves embedded local knowledge is often more useful than detached lab-coated science (Wynne 1996, Chilvers 2007, Lidskog 2008).

For example, in Wynne's classic text 'May the sheep safely graze?' (1996), which looked at a failed study into Chernobyl's nuclear contamination in the UK, Wynne found that experts paid little attention to lay actors (in this case Cumbrian sheep farmers) and overlooked their specialist farming knowhow. With farmers lamenting: 'they think a farm is a farm and a ewe is a ewe' (Wynne 1996, 67), the scientists missed out on the famers localised 'informal expertise' (ibid). They missed opportunities to improve their research, such as locating better sampling areas. The work showed that lay knowledge was viewed as non-rational and ignorant. Yet this local knowledge would have been very useful. While the work of Wynne does not dismiss the technocratic approach – which can, afterall, strategically 'see' where the lay perspective cannot - it does emphasise how a local perspective can be useful and sometimes more relevant to how risks should be understood.

Local knowledge can be very important. As Massey suggests 'most people live their lives locally (and) their consciousness is formed in a distinct geographical space' (1984). Heidegger's work on 'dwelling' emphasises the importance of living *with* a landscape to really understand it (1971) - this approach may be of use when analysing local risks. Others have followed this to propose: 'it is through being inhabited that the world becomes a meaningful environment' (Ingold 2000, 173) – to understand risk one must live *with it*. Tuan proposes that while one can gain a superficial knowledge of a place fairly quickly, 'the feel of a place takes longer to acquire. It is made up of experiences, mostly fleeting and undramatic, repeated day after day and over the span of years' (1977, 183 cited in Cresswell 2004). This assemblage of observations in everyday life can create new sources of

knowledge and expertise (Bruto 2007). This in-depth and tactile understanding of risk is continued through the use of the concept of landscape.

2.3.5 *Landscapes of Risk*

'Place effect' in relation to risk, can be examined using the idea of 'landscapes' (ecological/materialist/social-control/landscapes of consumption/etc.) to help talk about the importance of place (Day 2007). In relation to Chernobyl one conceptualization that carries weight is the Therapeutic landscape, which 'emphasises people's interpretation and experience of the physical and material dimensions of their surroundings; the symbolic characteristics of places is thus highlighted' (ibid, 251). This symbolism that certain places induce is important when researching a landscape that has negative health connotations, especially in relation to risk perception.

Though most work on Therapeutic Landscapes deals with the healing properties of place, for example Lourdes in France (Kernes and Gesler 1998), landscapes such as Chernobyl embody the perfect antithesis of a Therapeutic landscape; a dystopian microcosm of a post-nuclear world – a place that harms. Conventional therapeutic landscapes were often romanticised – such as the Italian mountains and distant deserts where 19th century tuberculosis sufferers were sent to convalesce (Sontag 1978). So too, in their own way – are anti-therapeutic landscapes such as Chernobyl celebrated in fiction, in film, computer games and the imagination; images of deformed children, abandoned shoes, that reactor. This is often visually repeated ad nauseam by outsiders, as 'Chernobyl tourists' who tramp around the abandoned city of Pripyat to reproduce their own 'ruin porn', repositioning abandoned dolls, shoes, and gas masks for effect (Davies 2013, 122)[18]. The Chernobyl landscape, though far from therapeutic, is loaded with symbolic meaning. If we follow Tuan (1979) and Mitchell (2003) by seeing landscapes as more than the podium upon which we live our lives, but instead as 'living systems in constant evolution with a significant symbolic component' (Broto *et al* 2007, 483 cited in Parkhill *et al* 2013) then the meanings attributed to the landscape of Chernobyl can be given real significance. Milligan et al (2004) for example reminds us that though the focus on

[18] See Rush-Cooper (2013) for an engaging discussion of the embodied experiences of Chernobyl tourists in the Zone.

therapeutic landscapes has tended to emphasise widely celebrated spaces of healing, such as health resorts (Kernes and Gesler 1998), the everyday 'quotidian spaces' (Moran 2015a, 123) such as the home can be therapeutic too.

Research on therapeutic landscapes typically ties in with the mainstream view of landscape-research which emphasises the *positive* aspects of place attachment (Vorkin & Riese 2001; Stedman & Hammer 2006). However, as Manzo point out, this means that 'there is much we still do not know about how negative and ambivalent feelings and experiences contribute to place meaning'. (Manzo 2005, 67).

2.3.6 *Anti-therapeutic Landscapes*

Though some places are bad for your health, there is no widely-used term for the antithesis of the Therapeutic Landscape. Academics have variously talked about 'landscapes of despair' (Dear & Wolch 1987), 'faulty environments' (Irwin *et al* 1999; Simmons 2004), 'stigmatised places' (Bush *et al* 2001, 47), 'landscapes of pollution' (Broto et al 2007), 'landscapes of threat' (Parkhill at al 2013, 14); or less symbolically - 'post-catastrophic environments' (Petryna 2003, 555); 'hazardous oases' (Lidskog 1996, 39); and 'contaminated territories' (Kuchinskaya 2010). There is no reason why the conceptualization of a therapeutic landscape should not be applied to a landscape that is in this sense *opposite*. Although 'the ancient concept of disharmony between the sick person and his environment seems very primitive and obscure indeed when compared to the precise terminology and explanations of modern medical science' (Dubos 1995, 6), in a post-nuclear environment where the science is uncertain and the risks intangible, the concept of the anti-therapeutic landscape seems very appropriate.

An anti-therapeutic landscape then, privileges the individual experiences and readings of their physical surroundings, it follows Heidegger's notion that one must 'dwell' with a landscape to understand it – and it situates a person within a highly symbolic space - a landscape that is synonymous with harm or pollution, whose risks are uncertain. While Heidegger's term 'dwelling' is normally associated with nostalgic and rose-tinted conceptualizations of home, or an ideal 'fatherland'

(Harrison 2007), others have discussed how 'dwelling is a way of being at home in the world' (Ingold 2010, 503), even if 'home is not necessarily a comfortable place to be' (ibid).

The idea of dwelling implies a lack of distance between individuals and things (Broto et al 2007) – which is very appropriate in a landscape polluted by invisible radiation, given the *embodied* nature of contamination. Relph takes Heidegger's notion of dwelling one step further to talk about the concept of 'authenticity' which he describes as a 'complete awareness'(Relph 1976, 78) of a place or landscape in which you dwell. In post-nuclear landscapes such as Chernobyl, however, it is arguably impossible to be completely 'aware' of the hidden dangers of nuclear radiation. Indeed, the lay perspective only has access to a particular 'mediated' version of the hazards within the landscape (Kuchinskaya 2010). If, as Beck (1986) suggests, technological hazards such as Chernobyl have made us 'blind' it therefore prevents this 'complete awareness' (Relph 1976, 78). However, for communities who dwell in anti-therapeutic landscapes such as Chernobyl, their 'sense of place' should still be regarded as very much 'authentic' in Relph's terms, especially in the post-socialist context where 'a deep attachment to the earth constitutes a recurrent element in the foundation myths of people of central and eastern Europe' (Conte & Giordano 1993, 13 cited in Urwin et al 2004). An 'authentic' attitude to place can be contrasted with an 'inauthentic' attitude to place which Relph describes as 'essentially no sense of place, for (inauthenticity) involves no awareness of the deep and symbolic significance of places' (ibid, 82 cited in Cresswell 2004, 44). Therefore what a landscape symbolises can be given importance.

2.3.7 *Stigma*

'Events that threaten people's health and safety exact a toll even if they never happen' (Fischhoff *et al* 1990, 32), in other words threats themselves can cause harm. In the case of Chernobyl, even if the radiation hazard does not do 'real' ontological harm, the existence of the Chernobyl landscape as an anti-therapeutic space is enough to maintain this perception of risk. In a discussion of nuclear landscapes in the UK, Parkhill et al suggest that 'negative connotations attached to a landscape due to the presence of cultural artefacts can have implications for those who interact with the landscape, potentially producing forms of stigma' (2013, 2). They conclude however, that

individuals experience and engage with this stigmatization of landscape in different ways – even if they live in the same area. They suggest that 'whilst people may experience stigmatising effects, this does not necessarily lead to them feeling stigmatised' (ibid,1). Other research which has focussed on Fukushima has argued that it is the idea of 'stigma' associated with radiological pollution (rather than the hazard itself) that causes most harm (Lee 2012). Broto et al (2008), meanwhile, in their work on landscapes affected by coal ash pollution in Bosnia and Herzegovina, emphasise people's capacity to *adapt* to this stigmatization, which can actually reinforce bonds between individuals through their shared experience of place.

In an earlier paper from the same case-study, Broto et al (2007) discuss how people dwelling in a polluted area develop a holistic view of the landscape, with one 'possible strategy to cope with pollution (being) to continue "business as usual", as if the risk were non-existent' (2007, 493). It is only through a dwelt understanding of local risk that these practices can make sense. Just as mechanics forget to notice the smell of car-fumes or tanners become accustomed to the stench of processed leather, so too can pollution risks become accepted into the prosaic ebbs and flows of day-to-day existence (Sapountzaki & Chalkias, 2005). In post-nuclear spaces, where the only sensorial 'signs' of contamination are those emplaced by those with the (technological) power to 'see' radiation, it is perhaps even more likely that risk becomes a 'background noise' and not the all encompassing fear that Beck suggests. Furthermore, some research suggests that there is a reluctance of people who dwell in polluted landscapes to acknowledge that risk impacts their own neighbourhood (Phillimore and Moffatt 2004), which will be expanded upon in the thesis (see Chapter 6).

Near the Chernobyl reactor, the consumption of the landscape itself – its water, its food, its air – can cause harm. Chernobyl's landscape becomes symbolic of this harm; it represents a potential danger. While in Kyiv, a photographer familiar with Chernobyl told me how it *felt* when he visits the region. He described the journey from Kyiv to the Chernobyl border, through the cities' outer limits, and then north past the wide open fields and abandoned collective farms: at some point '*things change...'* he said *'...I can't say how exactly, but it just feels different – do you know what I mean?'*. This

description, both vague and full of meaning, sums up the anti-therapeutic landscape – its intangible symbolism. I did know what he meant. That sense that the Chernobyl landscape is somehow different from other parts of Ukraine. However he, like I, had only the perspective of the outsider (see Chapter 3 for a discussion on insider/outsider positionality as well as 'accessing the field' through photographers).

Phillips talks about how Chernobyl has come to symbolise, for Chernobyl-affected people, a heightened awareness of their surroundings. She suggests there is a 'sort of sixth sense or "awareness plus" among those who share the experience of the disaster' (Phillips 2004) - Chernobyl becomes a set of symbolic resources as an anti-therapeutic landscape; there is a 'symbolism of an ever present awareness' (Phillips 2004).

2.3.8 *Risk and Agency*

All too often people facing environmental risk 'are treated as a passive agent in the path of potentially disastrous events' (Jasonoff 2008, 226) but this ignores the vast wealth of agency and local knowledge that even the most marginalised risk-facing communities can draw upon. Indeed, there are parallels to be drawn between 'lay people', as discussed widely in risk literature (Wynne 1996, Sjoberg 2001, Lidskog 2008), and Agamben's notion of Homo Sacer or 'Bare life' (1998). The concepts can be seen as complementary, in that they both imply a lack of power – in the 'power-knowledge' sense (Foucault 1988) - and at the *surface level* both 'bare life' and to a lesser degree the 'lay' perspective, can lack agency.

In terms of risk governance there has traditionally been a move by those in power towards making risk measurable, containable, and predictable. This often favours models of risk assessment and management that can be described as 'technocratic, decisionistic, and economic' (Renn *et al* 2011, 234). This formal and rational approach to risk is in line with de Certeau's notion of the 'strategy' which is a systematic approach; the 'typical attitude of modern science, politics, and military strategy' (de Certeau 1984, 36). However, other ways of thinking about risk for those without the 'panoptic view' of technocratic science have been recognized in the literature, where the 'lay perspective' often

produces different (Wynne 1996), and sometimes *better* ways of thinking about environmental risk. Ever since Starr's seminal paper in 1969, academics have wrestled with the idea that there is a divide between how experts and non-experts perceive risk (Wynne 1996, Sjoberg 2001, Lidskog 2008); those who are – to an extent - with and without power.

2.3.9 *'Risk Society' and Everyday Life*

The threat from Nuclear hazards such as Chernobyl has become the paradigmatic example used by Beck to articulate his idea of the 'Risk Society' (Beck 1986). Beck discusses a far reaching and often disputed idea in 'Risk Society' that the threat of technological hazards which transcend human senses has led to a radical shake-up of the way society views the world. He argues that individuals have become more concerned about the distribution of 'costs' and 'bads' than older pressures such as the allocation of wealth. For academics such as Beck and Giddens it was this unseen nuclear accident behind the Iron Curtain that would provide the perfect example *and* metaphor for a much of their later work (Beck 1986, 1992; Giddens 1990). Beck emphasises that 'by risks I mean *above all radioactivity*, which completely evades human perceptive abilities' (Beck 1992, 22 emphasis added). Here Chernobyl became not just an example of his 'Risk Society' in action, but the embodied quintessence of risk itself. In a paper written just one month after the disaster, Beck described how:

> '*In matters of risk, we have been disenfranchised. In nuclear democracy, we the citizens have lost sovereignty over our senses, and thus the residual sovereignty over our judgment*' (Beck 1986, 156)

Here Beck argues that the risks from technical failures such as Chernobyl have effectively made us blind though our inability to directly see the potential hazard. The disaster had everything – scientific unknowns, invisible hazards and a potentially borderless and global reach. Not only was the Chernobyl disaster a watershed in the narratives of many thousands of people involved, but also in academic thought concerning risk and humankind's relationship with technology. As Hamilton puts it:

> *'No longer designating a place and specific event, Chernobyl has become a generic*

name for the disaster that modern technology represents' (1992, 478)

There is little doubt then that radiological accidents such as Chernobyl have been vitally important to the discussion of risk as a concept, but the way risk is perceived on the ground presents a less clear picture. Much early discourse on nuclear risk was largely focussed on how and why people overestimate the risk from nuclear radiation. This was largely from the stance that people are (or should be) 'rational' actors. For example, although Starr acknowledges that individuals are not party to the 'objective knowledge' that he privileges science with, he suggests that lay persons use 'a crude optimization appropriate to his value system' (Starr 1969, 1233) - in other words a view that individuals are largely *rational* actors. He uses statistics to argue that rationally people should be more afraid of driving a car or smoking than they are of a nuclear radiation threat. It is with some frustration then, that he also finds that 'the public are willing to accept 'voluntary' risks roughly 1000 times greater than 'involuntary' risks' (Starr 1969, 1237). Nuclear risk is a perfect case study for risk perception because it is 'perceived to be involuntary, delayed in consequences, unknown, uncontrollable, unfamiliar, potentially catastrophic, inequitable, and certain to be fatal' (Covello 1983, 290).

In everyday life, technological hazards are not the only risks we face and the importance of these technological risks as compared to more prosaic risks can be questioned. In his treatise on risk, Beck placed a distinction between older risks such as poverty or war, and the technological risks of his 'new modernity'. He said that 'the ecological and high-tech risks that have upset the public for some years...have a new quality' (Beck 1986, 21). I would like to question that assumption. On paper, of course, these post-nuclear risks do suggest a new kind of threat – but what about in daily life? This thesis will reveal that 'new' risks associated with the catastrophic failure of nuclear energy are inseparable from more mundane 'older' risks such as poverty. Just as stone did not stop being used at the end of the Stone Age, so too do the risks of yesterday continue to be relevant in a post-nuclear world.

Beck was right to point out that some risks of today have a man-made and global significance they did not have in the past, and how these risks play out in everyday life is complicated, and open to research (Tulloch & Lupton 2003). Modern risks should be seen as part of a tapestry of everyday challenges that marginalized individuals have to tactically negotiate. This follows previous research that suggests that 'risk concerns may form only one – and not necessarily a unique or separable – part of the conditions within which everyday life is constructed' (Irwin *et al* 1999, 1312). Technological risk understandings therefore do not exist separately from a wide range of other social relationships and everyday concerns. Research into air quality describes how 'the presence of other social problems in a neighbourhood could lead to a lower relative importance being ascribed to air pollution' (Day 2007, 250). Indeed it may be difficult for some to separate issues relating to contamination from other concerns that impact the local area (Burningham & Thrush 2004). This suggests that the modern risks as described by Beck and others – be they radiation or air pollution etc. – may pale into insignificance in contrast to the long standing struggles of everyday life (Williams & Balaz 2012). What Beck suggests which is of direct use for this thesis, is that power and difference should be acknowledged when considering how different groups manage to deal with these new risks. For example, Beck argues that those who are wealthier and better equipped are able to purchase safety from risks associated with the 'risk society'. Indeed, as this thesis will show, those with fewer resources are preoccupied with everyday risks (such as poverty) and therefore nuclear risk becomes another layer of risk to mitigate.

A key criticism of notions of risk such as that set out in Risk Society is that it 'extrapolates too readily from worst case scenarios and overstates the globalizing tendency of risk' (Mythen 2007, 800). This plays down the fact that other threats exist, even if they are more prosaic and 'everyday' than that of nuclear disaster (Tulloch & Lupton 2003). Researching the Chernobyl border region is an interesting case study because it conflates the 'everyday' with the lived reality of perhaps the ultimate Beckian dystopian risk.

The familiarity or novelty of a hazard is seen as a key indicator of risk perception, at least when using the psychological approaches to risk (Fischhoff *et al* 1978). This would support Beck's assertion that

new risks are the most important. However, a cultural perspective might provide a more nuanced reading. Irwin *et al* (1999) suggest there are a 'broader...set of everyday concerns' (1999, 1325) that influence people in day-today life compared to the techno-centric view of risk offered in Beck's theorization. Others suggest that the nuances of everyday life muddy the water when it comes to applying risk theory which often fails 'to grasp the complexity of risk in everyday life (William & Balaz 2012, 174). Risk perception becomes much more heterogeneous when filtered through the chaos of day-to-day life. For everyday life to be understood as a site of investigation, it must first be theorised.

2.4 Theorising practice

Simplistic definitions of practice, such as the oft-cited 'nexus of doings and sayings' (Schatzki 1996, 83 cited in Reckwitz 2002), do not begin to compare with the more revealing and insightful ways 'practice' has been theorised by different critical thinkers. For example, Foucault views practice as a means of control, performed in prosaic ways by groups and individuals in institutions such as asylums, clinics and prisons (Jones and Murphy 2011). Alternatively there are linguistic interpretations of the concept of 'practice', such as those who see practices as the way norms of communication between different social groups are enforced (Bakhtin 1981) and resisted (Scott 1990). For Giddens, practices are 'everyday activities where agency and structure come together reflexively to create, reproduce, and/or restructure social systems' (Jones and Murphy 2011, 369). De Certeau's interpretation of practice, which this thesis is drawn to, is similar to Giddens's approach in that there is an emphasis on 'agency'. For de Certeau 'everyday practices of individuals are in fact tactical compromises between an individual's need to conform to a dominant social order and her/his personal expression of identity, meaning, and values' (Jones and Murphy 2011, 369). Lefebvre repeatedly argued for example that everyday life and their practices are 'a critical arena' (Highmore 2002, 225) for investigation, and both he and de Certeau emphasise how 'everyday' and prosaic activity can be used as a prism through which wider conclusions about society can be made (see **Figure 2**).

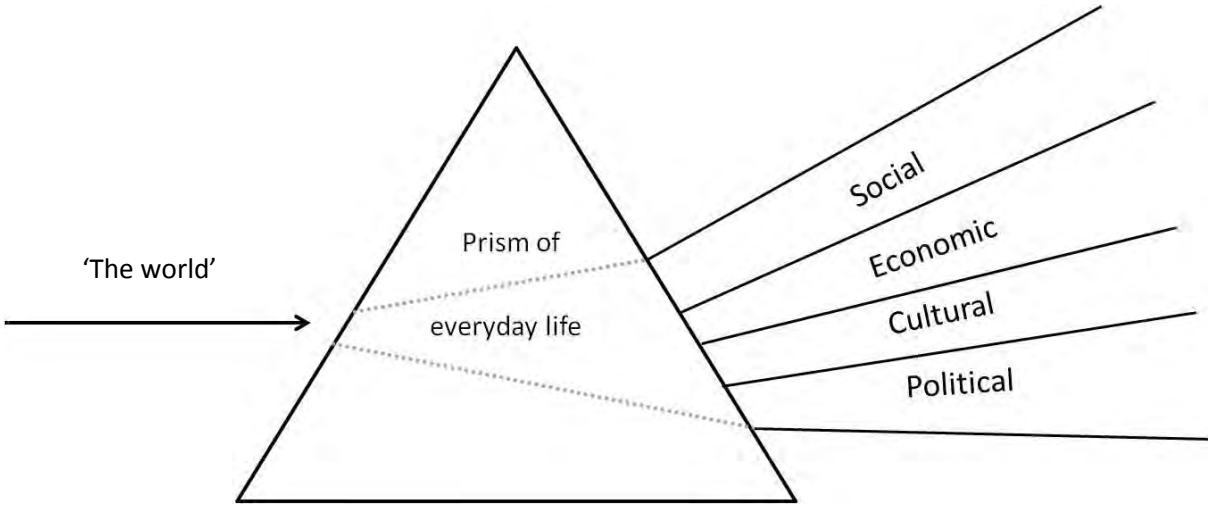


Figure 2: *Simple diagram emphasising Lefebvre (1971) and de Certeau's (1984) theorization of everyday life that positions prosaic day-to-day practices as a lens through which we may be able to understand wider economic, social, cultural, and political realities.*

Both Lefebvre (1971) and de Certeau (1984) use the City as a metaphor for the rigid social orders that everyday practices are able to resist (Sheringham 2006). De Certeau describes the detached process of viewing the structured nature of the planned city from the omniscient vantage point of a skyscraper; seemingly 'panoptic' and dominant. He contrasts this with the chaotic and embodied practice of movements and subversions that take place at street level, where the grid-like structure of the city loses its importance and simplicity (de Certeau 1984). Here, everyday practice is set up in opposition to 'an order that is monolithic, centred, strategic, universal, timeless, and spatial' (Sheringham 2006, 223) to show that practices often take place in ways and spaces that the city (or other power structures) did not intend.

Lefebvre also uses the metaphor of height and distance to emphasise the hidden complexities and importance of everyday life, this time in a more bucolic setting. He describes a mountain pass where the 'path' of everyday life separates itself from other philosophical approaches. These alternative approaches are forced to keep 'to the heights, thus overlooking that of everyday life; ahead the track winds, barely visible through thickets, thornbushes and swamps' (Lefebvre 1971, 17). The mysteries of the thornbushes and complexities of the swamps of day-to-day experience are kept hidden from

view, much like de Certeau's city gazer who fails to see how people really negotiate the city. Both theorists value practice in everyday life as something that is complex, difficult to theorise, but vital to understand. Lefebvre refuses to see the State and other power structures 'as the substance and hidden being of human reality' (Lefebvre 1971, 16) and instead calls for academics to 'revalue the mere residuum upon which they are built – everyday life' (ibid).

2.4.1 *Criticizing Practice*

The use of 'practices' as a framework for analyses can be criticised in two major ways. Firstly, the approach is inherently 'preoccupied with microscale processes' (Sunley 2008, 19) that therefore may not be transferrable and relevant to different scales. I would argue however, following de Certeau's reading of practices, that these everyday activities are inherently linked to governing structures such as institutions or the state. By critically looking at the micro-scale you are intrinsically making connections with forces and structures beyond the everyday (see Round at al 2010). A second criticism of practice-orientated research is that it can be argued that everything in society and the economy is in some way 'practiced' and therefore in indirect or direct ways human geographers and other researchers are all, at some level, interested in practice – therefore where is the novelty? However, Jones and Murphy (2011) refute this criticism by arguing that only recently have scholars explicitly paid attention to practices themselves, rather than seeing practice as (at most) an unimportant by-product of the power structures and institutions in which they take place. Indeed, day-to-day practices, including 'risk practices'[19] are an important avenue of research if we agree with Jones and Murphy's conclusion that:

> '*practice offers a potentially powerful, yet complementary, epistemological tool that can create space for the study of a wide range of socioecomic and geographical phenomena*' (2010, 366)

[19] Though the term 'risk practices' has been predominantly used to refer to sexual/drug behaviour, and specifically the risk of HIV-Aids infection (see Moran 2005; Rispel *et al* 2011), it is also apposite for discussing behaviours relating to risk perception and resultant behaviours in an anti-therapeautic landscape such as Chernobyl.

There is an existing body of literature that involves looking at practice in everyday life (Gibson-Graham 1996, 2008; Powell 2002; Leyshon et al 2003; North 2007;), including various recent accounts of the role of practices in post-socialist space (Pavlovskaya 2004; Smith & Stenning 2006; Smith & Jehlicka 2007; Round et al 2010; Stenning et al 2010a; Williams et al 2013; Morris & Polese 2014). Here practice is used as a framework for studying various types of resistance, with all of the previous citations dealing in one way or another with 'alternative economies' (discussed in section 2.5.3 and Chapters 5 and 6).

Of note for this thesis are the works of Round et al (2008, 2010) who empirically focus on marginalization in Ukraine, and use Lefebvre and de Certeau to theoretically frame their argument. They discuss how informal economic activity such as domestically growing food, informally selling produce and social network reciprocation, is used tactically as a way of subverting and creating 'spaces of resistance' (Round et al 2010, 1198) that move beyond traditional views of 'the economic'. This work follows various previous discussions of self-provisioning (Burawoy *et al* 2000; Pallot & Moran 2000; Smith 2000; Czegledy 2002) and the importance of social capital and networks (Grabher & Stark 1997; Acheson 2007; Polese 2009) in post-socialist space, but adds a theoretical dimension that had thus far been largely absent from the literature.

Artiukh (2013) offers a critique of Round et al (2010) and their use of de Certeau, suggesting it is redundant to differentiate between the strategies of the state and everyday coping tactics of the marginalised 'as the latter themselves are part of the state's and capital's strategy of accumulation' (Artiukh 2013, 10). In other words it suits the incumbent power structures to *allow* everyday tactics to persist, as no more than a mere distraction from wider potential class conflict and uneven power distributions; the tactical practices that Round *et al* privilege are therefore seen as a result of the overarching power structure, rather than a pragmatic solution or genuine act of resistance. This critique is in line with Agamben's all encompassing notion of sovereignty where there is little room for struggle below the overarching power of those who make (and are allowed to break) the law (Agamben 1998, 2005).

A further critique of de Certeau is offered by Doreen Massey (2005) who highlights the potentially dichotomising nature of viewing tactics and strategies, suggesting that it creates a binary of power and resistance. However, I think de Certeau's theorization of 'tactics' and 'strategies' in fact opens up a more nuanced and textured reading of power relations than Massey gives it credit for. Massey's reading of de Certeau is too focussed on his metaphorical use of built-form, and she therefore entrenches the binary herself by interpreting strategies as only fixed, static, and immovable power structures – which is far from de Certeau's analysis. While she sees this as a simplification of reality, I follow others in interpreting strategic power and tactical resistance as a key way to understand the complex ways that power is enacted, embodied and resisted in everyday life (Sheringham 2006; Round et al 2010).

Likewise, although Artiukh (2013) offers an interesting angle, I think he misreads de Certeau (1984), who has resistance at the core of his writing. De Certeau sees practices as inherently defiant in that they cut across systems of order and established societal norms (Sheringham 2006, 215). The same can be said for Lefebvre, for whom 'the idea of revolt and resistance are at the heart of the everyday' (Sheringham 2006, 150). Indeed the appeal of de Certeau and Lefebvre's theorizations of practice are their optimism. Though by no means utopian, both scholars account for the potential for change that comes from day-to-day practice, where even 'at its bleakest, the everyday always evidences the potential for transformation' (Highmore 2002, 225). De Certeau suggests 'tactics work within the constraints of a given order, bringing about 'manipulations within a system''(Sheringham 2006, 214); it does not deny the power of the Sovereign, but it does give individuals the agency to poach beyond its field of view.

2.5 Informality

In post-socialist space, beneath the shadows of the neon-lit signs of marketization, the informal economy remains vital yet largely 'invisible' (Davies & Polese 2015). Beyond the more obvious street-level traders and the like, most informal activity – for good reason, is practiced beyond the 'panoptic gaze' of the State (Foucault 1977). The seemingly invisible nature of this economy is suggested in its various names; from 'shadow', to 'underground', to 'hidden' or 'black', there is an

underlying assumption that informal activity is unseen. Indeed informal activity has been labelled as 'the non-observed economy' (Hussmanns, 2005, 9) with the impression that it takes place in 'other worlds' (Gibson-Graham 2008, 1). Of course, not all *formal* economic activity is visible; from secret board-meetings to the everyday action of covering your PIN code, but it is the enigma of the informal that both perplexes, and is attracting a burgeoning academic interest.

An important text in relation to informality is offered by Katherine Gibson and Julie Graham (2008), who were frustrated with the lack of academic discussion of alternatives to capitalist hegemonic structures after its apparent 'victory' since the fall of the Soviet Union. They put forward the idea of 'diverse economies' (ibid, 613) as an important and under-researched alternative economic area. They suggest that 'marginal' economic practices – when viewed holistically, are much more widespread and even account for more value produced than the capitalist sector. For example, they cite unpaid household care as approaching 50% of economic activity in both developed and developing contexts, when measured in terms of hours worked (Gibson-Graham 2008). They also draw attention to the myriad of other small-scale yet very important household and individual practices that operate outside traditional framings of the economy. These include barter, self-employment, volunteering, gift exchange, self-provisioning, the informal market, housework, work-in-kind, gleaning, and reciprocity, among many others. All these practices extend beyond the strictly monetary and formally 'economic', and as will be discussed – are especially relevant in post-socialist society (Morris 2011). It is clear that informal activity can extend well beyond monetary definitions.

2.5.1 *Measuring the Informal Economy*

Attempts have been made to measure the size of the informal sector which is understandably inherently difficult, and some would argue a fundamentally flawed task (Frey & Weck 1983). Friedrich Schneider leads the field in quantitative estimations of the 'shadow economy', for example finding that throughout the 1990s the 'shadow economy' has increased dramatically for all 'transition countries' (Schneider 2005)[20]. He finds that the average size of the shadow economy as a proportion of GDP in transition countries was as much as 38% (ibid). Furthermore, Schneider suggests that

[20] This does not mean that there was not a long history of informality and 'blat' under the Communist system.

Ukraine has the second largest shadow economy of all 21 'transition countries' investigated[21], with an average of 49.7% of GDP made up from the non-formal economy between 1999 and 2007 (Schneider 2011).

This demonstrates the scale of the informal economy, both at the macro-level as suggested by Schneider (2005, 2007, 2010) but also the importance of everyday practices of informality at the household level as proposed by Gibson-Graham (2008). Indeed there is a clear centrality of household survival strategies in post-socialist space. To put this informality in context it is necessary to give further detail about the Ukrainian sitaution.

2.5.2 *Marginalization and Informality in Ukraine*

Transparency International found that in 2005 Ukraine had the highest number of respondents (82%) who had recently paid a bribe to access services they were (in theory) entitled to (Williams et al 2013). Furthermore, of 185 countries studied in the World Bank 'Doing Business Survey 2013', Ukraine came out at a dismally low 137th, citing high levels of corruption as a systemic problem (World Bank 2013). In 2013, Transparency International also ranked Ukraine 144th out of 177 Countries in terms of perceived levels of public sector corruption, worse than that of Iran and Uganda (Transparency International 2013).

In terms of economic marginalization, things are not much better. Official Ukrainian State statistics declare that ten million Ukrainians, of a population of 45 million (20%), were receiving incomes below state subsistence minimum level in 2005 (Williams et al 2013). However what this figure does not reveal is that the 'subsistence level' only permits for an exceptionally basic diet, and for clothes to be purchased once every three to five years (Round & Kosterina 2005). It also implies that people will have *access* to state benefits and subsides they are entitled to, which is often far from the case. With

[21] Georgia came out worst, with a staggeringly high 65.8 per cent of GDP between 1999 and 2007 (Schneider 2011)

regard to the primary income, Rose (2005) finds that in Ukraine over two thirds (73%) of Ukrainians do not receive enough money to purchase what they require to survive.[22]

Given the size of the informal sector and the high levels of marginalization, it is understandable that informal activity provides such an important role in Ukrainian everyday life. Both in terms of macro-scale (Schneider 2010) and everyday household practices (Gibson-Graham 2008), it is clear that in Ukraine informality is a very widespread and important survival tactic, and is therefore a vital area of investigation.

This thesis will advance Gibson-Graham's call to 'bring marginalised, hidden and alternative economic activities to light' (2008, 613) and further demonstrate that informal activity is a key survival tactic for marginalized communities in Ukraine. However, it will also uncover how these informal practices interact with the everyday realities of living with Chernobyl, including people's construction of risk and their negotiation of bare life. It will demonstrate how the ability to perform informal practices is often given greater importance than the need to avoid exposure to technical risks associated with radiation, meaning many people are prepared to realign their risk behaviours accordingly. The thesis will discuss how there is a two-way dialogue between (technical) risk understandings and informal behaviour, with one impacting the other. To take one example, the thesis questions the importance of close-knit social networks in sustaining informal practice, and examines its role in effecting people's relationship with place. It will explore the relevance of framing these informal activities in terms of de Certeau's notion of the 'tactic' (1984), addressing questions around agency and bare life.

2.5.3 *Sea of Informality*

On the uphill struggle through post-socialism, the route is no longer planned by neo-liberal ideas of 'transition' from a to b, nor mapped out teleologically by 'one size fits all' Washington-

[22] The 27% of Ukrainians who receive enough money to survive from their primary income are not excluded from the informal sphere as informality penetrates many levels of the economy in monetary and non-monetary ways. This is further demonstrated by Jeremy Morris who shows that workers who do not *rely* on informal income still engage with 'a variety of make-do practices' (2013, 98). Furthermore, it is not only Ukraine where poverty is systematically underestimated (Satterthwaite 2004).

consensus cartography; in fact there is no 'route' at all (Buraway 2002; Ledeneva 2004 and Stenning 2005).[23] Instead, coping mechanisms such as informal work (Stenning 2005 and Williams & Round 2007), economies of favours (Pavlovskaya 2004; Kuehnast & Dudwick 2004; Polese 2008), 'social acknowledgement' (Morris 2011, 629), gift exchange (Mauss 2002), memory (Buyandelgeriyn 2008), identity (Czegledy 2002) and social/kinship networks (Grabher & Stark 1997; Lonkila 1997, 1999; Polese 2009; Walker 2010) have all been shown to help navigate the post-Soviet 'every-day'. While these behaviours have social and cultural meanings beyond their economic necessity, it is important to stress the central role that they play in the lives of millions of marginalized individuals in post-socialism. Such is the prevalence of these behaviours that one could argue that ''formality' could safely be concluded as an exception and 'informality' the rule' (Routh 2011, 212). Böröcz (2000) goes one step further to provocatively suggest that:

> '*what we ought to explain is not so much the existence of informality but the emergence of, and adherence to, formal rules and organizations in the sea of informality that is social life*' (2000, 352)

In post-socialist space and beyond, informal activity is a very normalised and unexceptional part of everyday life. However, the word 'informal' is a culturally loaded term 'used frequently in its positive, neutral, and negative senses' (Ledeneva 2006, 18); as a synonym for criminality, through to a rose-tinted expression of resilience and self-reliance (Williams & Lansky 2013).

2.5.4 *Spectrums of Informality*

There is an inbuilt binary in the word informal i.e. the implicit understanding that it means 'almost anything that is not formal' (Ledeneva 2006, 18). This dialectic between formal and informal economies is how informal economic activity was originally theorized, ever since the term was first conceived by Keith Hart (1973) in his work on Ghana and Kenya. However, these dualist interpretations of 'formal' and 'informal' economies being somehow separate (Peattie 1987) have increasingly been replaced with a widely held view that they *coexist* (Arimah 2002; Stenning 2005;

[23] Sections of this have already been published in Davies (2015) and Davies & Polese (2015).

Round & Williams 2007; Routh 2011; Williams & Lansky 2013; Williams *et al* 2013; Morris 2014) with 'interlinking' (Kay 2011, 46), 'interwoven' (Polese & Rodgers 2011, 613) and 'imbricated' (Morris 2011, 622) connections between the two *symbiotic* economic spheres. They thus extend back and forth along a 'continuum' (Williams & Lansky 2013, 362). Indeed, the interdependence between the spheres has led some academics to describe a 'spectrum' (Williams & Round 2007, 2010; Williams *et al* 2011) of formal and informal activity that extends the width and depth of the economy.

Some examples from the post-socialist context include evidence that many people who are by some measurements 'formally' employed, sometimes get a double wage – one official and another 'under the table' by way of an 'envelope' payment (Round et al 2008; Merikull & Staehr 2010; Williams & Lansky 2013; Williams et al 2013). The 'intimate entanglement' (Williams et al 2013, 201) of formal-informal economies is emphasised further by research from Russia that suggests many people use personal informal networks to obtain formal employment (Clark 2002) and can sometimes only secure formal employment after the payment of bribes (Round & Williams 2008). Another example is the way that everyday survival tactics are often interlinked with the state via a pursuit of (often scarcely available) welfare support. This means that 'the state is very much at the centre of the strategies of poor households, even if it dispenses very little' (Burawoy *et al* 2000, 47). Likewise the 'formal economy' can been problematized as a 'homogenous block', and it too bleeds its way into the informal end of the spectrum. Indeed, Williams *et al* suggest that 'the formal economy is so infused with informality that it is difficult, if not impossible to differentiate formal and informal labour practices' (2013, 195).

2.5.5 *Social Networks*

Morris (2011) provides an interesting case study from factory workers in the Kaluga region of Russia where he investigates how people negotiate their 'worker' identities in a climate of formal and informal 'imbrication'. He finds that many people survive by juggling badly-paid formal employment with a range of better paid though more precarious informal practices such as gleaning from work and 'working on the side'. Though maintaining a 'blue collar worker' status is felt as very important for both practical and social reasons, he finds that many people express more enthusiasm and pride when

talking about their informal activity. He describes how informal work is often considered more satisfying than formal employment, because 'the workers felt they were largely peer-and-self-managed' with high levels of self worth and mutual recognition (Morris 2011, 627). Likewise Williams et al (2013) describe how respondents in Russia and Ukraine often spoke with pride about being able to perform informal practices, as it demonstrates their agency even in difficult circumstances. This openness about informal practices, which negates the apparent 'invisibility' of the informal sphere, was methodologically useful when conducting interviews with participants.

Morris (2011) concludes that 'the Russian urban poor seek diverse means of increasing their incomes and managing risk' (2011, 629) which involves a mixture of formal and informal practices. Social networks maintained through formal work are vital to informal practices (Smith & Stenning 2006; Morris 2013), such as being able to find a stand-in if informal odd jobs need to be done during working hours, or reciprocally recommending friends and peers for potential cash-in-hand work outside day-to-day employment (Morris 2011) . Sustaining these social networks through shared non-paid work and gift giving is also crucial. In their research on post-socialist space, Grabher and Starl (1997) also found that social networks were vital to everyday survival. They describe how social ties reduce the insecurities and risks of post-socialism, acting like ropes binding mountain climbers together on a difficult assent:

> '*these ties reduce risk, they buffer the networks from the uncertainty of transformation shock*'. (Grabher and Starl 1997, 15)

This idea of informal practices from social networks being a 'safety net' is further supported by Round (2006) in his work on the survival tactics of marginalized Gulag survivors in Magadan. Given the extremely hostile climatic conditions of the region, pensioners who live in the 'far north' often rely on social networks to make sure they survive the winter, especially as their formal income - a tiny State pension - does not give them the means to survive. Food grown domestically in the brief summer months was found to be a key survival strategy; not just for the nutrition it provides, but for the way it fosters kinship and social capital among a vital close-knit network. Indeed such is the

importance of these informal ties, that when Gulag survivors were eventually allowed to return to their homeland (Ukraine) after the collapse of the Soviet Union, many would not leave Magadan because they would have lost their informal connections, plot of land, and means of survival (Round 2006; 2008)[24]. Severing these networks would mean they would need to be *reconstructed* elsewhere, which is very difficult as they are deeply embedded in place and difficult to reproduce. In other words many people 'would rather remain, in difficult conditions, in their current location, because 'I know I can survive here'' (Round 2008, 137). This is supported by earlier research which suggested that ties to the land and the informal activities this permitted were a key reason why people do not want to relocate from Russia's geographic, social and economic margins (Pallot & Moran 2000). This emphasises the importance of place attachment and social networks for marginalised communities who survive against a backdrop of economic uncertainty and perceived state indifference. The theme of returning or staying-put in a conceivably hostile environment is a theme that will emerge from the empirics of this thesis (see Chapter 6).

2.5.6 *The Household*

As suggested through the Magadan case-study, the household is an important site for informal survival strategies. This can in part be seen as a post-Soviet legacy. Before the breakup of the Soviet Union the home was an essential place of 'escape' and resistance, acting as a 'flexible unit able to cope with shortage under late socialism' (Smith *et al* 2010, 76). After communism this has continued, with perhaps even more emphasis on the household, with the State retreating from its previous role in social reproduction and welfare. The household remains a key place of informal practice and resilience, with scholars commenting that in the turmoil of post-socialist uncertainty the 'fulcrum of production and redistribution has moved from the factory to the household' (Burawoy et al 2000, 43)[25]. For example, Pavlovskaya's (2004) research with marginalised families in downtown Moscow found that the household is a vital site of 'multiple economies' such as childcare, informal work, and

[24] Likewise a more quantitative approach by Friebel and Guriev (2000) suggested that the reason Russian workers do not want to leave 'obsolete sectors' is they are reliant on non-monetary compensation and are therefore financially insecure.

[25] This in some way contradicts Lefebvre's belief that *public* space provides the primary stage for resistance (Stevens & Dovey 2004), however he does also emphasises how intimate geographies of everyday life are infused with political significance (Lefebvre 1991)

housework shared through family and social networks. All of these household practices contribute to the daily struggle of 'making ends meet' in the precarious economic environment of post-socialist Moscow. The necessary ability to draw upon a 'portfolio of activities in both the 'formal' and 'informal' sector' (Pallot & Moran 2000, 341) supports the idea of Gibson-Graham (2008) that 'diverse economies' extend beyond formally capitalist interpretations.

Stenning *et al* (2010) in their work in Poland and Slovakia conclude that as long as we acknowledge how the space of the household connects to other economic spheres then it remains a vital place of enquiry. Anne White for example, in her research in small town Russia, demonstrates how the household connects to the wider economy, describing how household labour is often redistributed between family members 'to allow access to profitable secondary employment' (White 2004, 127). The household is not just a location of mere 'survival', but a place of social reproduction that 'can also be used as a method for improving the status of the household, for social climbing' (Wallace 2002, 282). However, a rose-tinted view of household economies must be avoided, as for many people households remain far from pleasant places and are often the site of domestic abuse and exploitative labour (Rose 1994; Pine 2002).

3.5.7 *The Land*

Deeply entwined with household survival strategies in post-socialist space are the importance of food self-provisioning and a connection to the land. Many people in Russia and Ukraine, even those who live in urban areas, are only detached from rural life by one or two generations. Furthermore, recent memories of challenging food policies and shortages in late-socialism combine with the distant collective memory of Ukraine's Holodomor[26] famine to produce a very particular relationship with the land and subsidiary agriculture. These 'inherited landscapes of food provisioning and attachments to land' (Stenning et al 2010, 144) play themselves out in how centrally important growing your own produce is for many people, even those who live in urban regions. Especially so in marginal regions, home-grown produce remains vital for many, and this can be considered part of the

[26] An estimated 7 -11 million people died in a state educed famine between 1932-33 and plays an important role in Ukrainian collective memory and identity. Other food shortages such as after the Great Patriotic War are also part of many people's family narratives.

spectrum of informal activity (Pallot & Nefedova 2003). Clarke (2002) argues that this extends beyond mere survival necessity, citing how inefficient it is to grow food in a 'dacha[27]' setting. Despite this, self-provisioning is given great importance (Stenning et al 2010); just as much a form of 'escaping' the city, fostering social ties, and form of affective connection to the land as it is for actual food provision.

Furthermore this form of self-provisioning and informal practice is most closely connected to Heidegger's notion of dwelling (1971), especially given its bucolic setting. However, this form of work should by no means be considered a rose-tinted expression of the rural idyll, but rather a backbreaking and necessary task (albeit one that extends beyond the food it provides).

Research in Russia has found that attachments to the land have both emotional (Graybill 2013), and also practical rationales (Round 2008). It has been argued that this attachment is especially strong where people use natural resources for everyday survival (Graybill 2013), which is the case in the research areas near Chernobyl.

Informality will be a key area of enquiry in this thesis (especially in Chapter 5). While acknowledging that the formal-informal dialectic forms a continuum (Williams *et al* 2013), the thesis will argue that informal activity especially is a key way in which marginalized individuals both exert their agency, and negotiate their position in a post-Chernobyl 'state of exception' (Agamben 2005). It will suggest that informal activity is crucial both for survival strategies that go 'beyond coping' (Morris 2013), and also an expression of the 'authentic' (Relph 1976) sense of place and attachments that people in this area embody (Chapter 6). Local risk understandings and everyday informal activity intersect and weave together to reproduce space, which can be framed in terms of de Certeau's 'tactics' (1984).

2.6 Chernobyl Literature

Though Chernobyl has been predominantly explored by scholars from the hard or life sciences, the disaster has also received attention from various social science fields, including authors in anthropology (Petryna, 2002, 2011; Phillips, 2005, 2012), sociology (Kuchinskaya, 2011, 2012,

[27] An allotment setting popularised under communism, usually outside urban areas.

2014), history (Marples 2004; Kalmbach, 2013), studies of tourism (Goatcher & Brunsden, 2011; Stone, 2013; Yankovska & Hannam, 2013), culture (Falkof, 2013), and visual studies (Bürkner, 2014). What these scholars share is the realisation that the Chernobyl disaster has multiple interpretations and realities, but what is curiously missing from these discussions is the role of space and place in relation to Chernobyl, with the disaster being thus far bypassed by geographers.[28] The nascent scholarship that does exists which looks at the place of Chernobyl and its nuclear landscapes tends to focus on Chernobyl as a place of tourism (Stone 2013; Rush-Cooper 2013; Yankovska & Hannam 2013). While this is interesting and adds valuable insight into the role of 'thanatourism'[29] or 'dark' (Stone 2013), or 'toxic tourism' (Yankovska & Hannam 2013) in reproducing disaster spaces, it ignores the actual lived experience of Chernobyl, by framing the nuclear spaces of the Zone as a playground for outsiders.

Based on ethnographic research in the city of Kyiv, Phillips (2004) takes an anthropological look at the role of food in post-Chernobyl Ukraine, arguing that the nuclear accident has fundamentally altered the way people in Ukraine consume and think about food. Her research is grounded in interviews with 'average Ukrainians' (2004, 44) who live in Kyiv and are therefore not directly impacted by Chernobyl, living far away from its contaminated spaces. She focuses on how her participants take highly precautious safety measures such as consuming 'radioprotectors' in their food.[30] The ethnography of Chernobyl in this thesis (which included participant observation in Kyiv) finds little evidence of radioprotectors being used in day to day life, though the empirical focus was primarily on a different geographic area (rural spaces adjacent to the Zone). Nevertheless, her examination of the politics of food consumption after Chernobyl provides a useful counterpoint to the discussion of food practices revealed in Chapter 6, where the role of place in shaping people's relationship with food and risk will be revealed. For example I will explore how the 'neighbourhood halo effect' (Bickerstaff & Walker 2001, 134; deGroot, 1967; Rankin, 1969; McBoyle at al, 1972) of

[28] Though Marples (2004) is published in a geography-related journal ('*Eurasian Geography and Economics'*), its content - though fascinating - is historical in perspective.
[29] 'Thanatourism' is derived from the ancient Greek for violent death (thanatos) and is a growing academic field in tourism and hospitality studies, with potential for further exploration by geographers.
[30] Phillips defines 'radioprotectors' as 'foods and foodstuffs that have been shown to decrease the effects of ionizing radiation on the human organism' (2004, 35).

place and local understandings of radiation risk provides the necessary 'protection' from the threat of contaminated food. Kuchinskaya (2012, 2014)[31] meanwhile, in her Chernobyl related research investigates how public knowledge about radiation health effects have been articulated and occasionally 'made invisible' (ibid 2012, 82) in Belarus though formal representations and governance. She uses archival approaches in Belarus to outline how different attempts to reveal or conceal the impacts of Chernobyl have occurred at various levels (see Chapter 4).

Adriana Petryna (2002) also adds a valuable contribution to understandings of Chernobyl, from her research within Ukrainian medical institutions during the 1990s. Using an anthropological lens, she concludes that Chernobyl has produced a situation of 'Biological citizenship' whereby Chernobyl-affected Ukrainians use their damaged biologies as a resource with which to compete for higher Chernobyl compensation and disability subsidies. In her book 'Life Exposed' (2002) she describes how the state partially allocates welfare according to the (estimated) amount of exposure an individual has received, as opposed to the level of health impacts (disability/ impairment), as in other welfare states. This thesis will build upon this to discuss the role of geography in the allocation of exposure-based welfare. Unlike Petryna (2002, 2004) who places a lot of emphasis on welfare, this thesis will reassess the importance of Chernobyl welfare in everyday life, finding that the Chernobyl welfare system is in fact a 'Potemkin village' of welfare support: a facade of de jure entitlements masking de facto state abandonment (Chapter 5).

2.6.1 *Nuclearity*

Though previous scholarship on Chernobyl has lacked a geographic component, one way of addressing this and theorising the (official) nuclear spaces of Chernobyl is through Hecht's concept of 'nuclearity' (Hecht 2012). Historian Gabrielle Hecht asks the simple yet salient question - when does uranium, the raw ingredient for the nuclear industry, count as a 'nuclear' thing and when does it not? For that matter, when can anything be defined in nuclear terms, be it an object, an industry, a state, or a place? Tackling this conundrum, she argues that this question is more than a matter of semantics but

[31] It was very interesting to see both Phillips and Kuchinskaya present their work at an international conference on Chernobyl in Potsdam (Germany) in 2011, before the main bulk of my fieldwork took place.

is ontological, with 'nuclear ontologies' having their own distinct geography and history (2006a, 2010). Hecht reminds us that 'nuclear' things are not defined purely as a scientific category, focusing on the uranium industry in Africa to illustrate this point. When Hecht examines the varying ways that 'nuclear' was interpreted by European powers in 'the West' versus in the colonial spaces of Africa, she finds that far from being an immovable category, "(t)he boundary between nuclear and non-nuclear has been frequently contested" (Hecht 2012, 14). One example Hecht uses to demonstrate this is how uranium miners in European colonies such as Madagascar during the 1960s were denied the same nuclear status as equivalent miners who worked with the *same material* in France. Madagascan miners were not informed about the presence of radiation by their colonial overseers, whereas French miners in France were.

Not only were uranium miners in Madagascar not told about the presence of radiation danger, but this deliberate reclassification of uranium mines in colonial space effectively (re)made radiation 'invisible'. In France, uranium mines were classified as 'nuclear workplaces' - with all the emotive and political nuclear-exceptionalism and labour rights that this entails - whereas in Madagascar the mines were reduced to normal workplaces. Colonial exploitation, racism and the dominant power structures had effectively transformed the uranium mines in Madagascar into non-nuclear spaces (Hecht 2006a). The substance of uranium had not changed, but the way it was interpreted had; the border between nuclear and non-nuclear was made malleable.

Hecht calls this process 'nuclearity' – referring to the way 'nuclear' things, industries, objects and (I would emphasise) *spaces*, are defined through cultural, political, and social filters as well as scientific and technical measurements. As such nuclearity can be seen as 'a technopolitical spectrum that shifts in time and space' (Hecht 2006a, 322). What is considered nuclear in one place may not be deemed nuclear in another, and likewise temporally: what was not defined as nuclear in one decade, may eventually be framed as nuclear in another. In other words what is considered 'nuclear' is not a fixed category but a pliable term with fuzzy boundaries.

'Nuclear' is not simply a scientific term; the power of the word alone sees to this - its connotations and images that it evokes, creates an inherent exceptionalism of nuclear things, meaning the border between nuclear and non-nuclear becomes contested ground. To give another example of nuclearity, Hecht describes how nuclearity can be geopolitically selective. For example she reminds us that the 2003 invasion of Iraq was justified in part by reports that Saddam Hussein was trying to obtain 'nuclear material from Niger' in the form of uranium. Yet, the Office of Technology Assessment failed to classify Niger as undertaking any 'nuclear activity', despite Niger, Namibia and Gabon accounting for a quarter of the world's uranium (Hecht 2006b). Here the substance of uranium mined in Niger was framed as both a nuclear and a non-nuclear substance, despite being the exact same thing. For one circumstance (to justify the Iraq war) the powerful trope of 'nuclear' was used in relation to the State of Niger, but in another circumstance the country was defined as a 'non-nuclear State'. In Chapter 4 I will use the idea of nuclearity to re-examine the contested and negotiated borders of the Chernobyl Exclusion Zone to show how nuclear spaces have been officially 'constructed'. Chapter 5 will then go on to explore how these official nuclear spaces have been deconstructed and negotiated informally in everyday life.

Not only has Hecht's idea of nuclearity not been applied to a nuclear disaster space such as Chernobyl, it has also remained unused by geographers who, this thesis will illustrate, are able to use the concept to analyse how official nuclear spaces are produced (Chapter 4). There is scope for geographers to apply the concept of nuclearity to nuclear spaces. In this thesis nuclearity will be used to critically investigate the social, political, cultural, as well as technological reasons that certain places in Ukraine were designated as 'nuclear', where as other places are 'non-nuclear'. In this thesis I will build upon the valuable contributions made by Hecht and other nuclear scholars to discuss the case study of Chernobyl.

2.7 Conclusion

This literature review outlines and discusses some of the key concepts that help contextualise and frame the empirics, and which will be built upon in Chapters 4, 5, and 6. The discussion of the empirics will aim to make a connection between Agamben and de Certeau's notion of power and

resistance, providing a new framework for understanding bare life and how these two theorists can complement each other. Agamben's notion of bare life will uniquely be related to a discussion of risk understandings, as the thesis explores the way marginalised communities overcome the consequences of living in nuclear spaces as well as the stealthy violence of de facto abandonment. As will be revealed, this pursuit of agency within post-atomic bare life often involves employing informal economic activities as well as unofficial understandings of nuclear space. These local and informal understandings of space often run counter to, or in parallel to, official constructions of nuclear space that have developed through special processes of 'nuclearity' (Hecht 2012). Before these themes can be explored however it is necessary to illuminate the methods and challenges that were an integral part of constructing the findings of this PhD thesis.

Chapter 3: ***Methodology***

3.1 Introduction

This chapter discusses how my research participants and I constructed the data for this thesis. It will outline how qualitative methods were used to address the research, and will highlight the challenges faced while 'in the field'. The research strategy will be outlined and throughout the chapter I highlight the importance of a reflexive approach. The chapter will discuss the importance of acknowledging my own situated positionality and performances during the ethnographic research. It will outline how I used professional and participant photography to both access and visualise the field. The chapter begins by taking a fieldwork snapshot or ethnographic 'punctum' (Barthes 1980, 27) from 'the field' that will demonstrate that the research process was not a linear and perfect practice but a 'messy' (Kay & Oldfield 2011, 1277) and at times difficult negotiation that requires honest reflection. Before this however, the following section briefly outlines the research methods.

3.1.1 *Outline of methods*

Between October 2010 and November 2013 I undertook six research trips to Ukraine, each visit lasting at least one month. Pilot studies in 2010 and early 2011 made way for 114 recorded semi structured interviews and many more informal (and unrecorded) open-ended 'kitchen table' (Round & Kosterina 2005, 405) conversations and ethnographic encounters primarily in the villages next to the Chernobyl Exclusion Zone, but also with evacuees and liquidators in Kyiv and Western Ukraine. Interviews ranged from twenty minutes to five and a half hours. They included conversations with border guards, local elites, evacuees, returnees, former liquidators, 'Chernobyl widows', the head of the UNDP Chernobyl programme, but primarily with many people who live in regions officially contaminated by Chernobyl, in Zones 3 and 4 (see chapter 4 for explanation of Zones). Due to the length of time between the first and last research visit (more than three years), I was able to conduct several interviews with the same participants, increasingly building rapport. Participant observation was conducted extensively in the Chernobyl border region, as well as at protests and memorials in Kyiv. Other participant observations included official visits to the Exclusion Zone and unofficial

encounters with border police. In addition to these ethnographic techniques I also conducted a participant photography project involving 40 disposable cameras that opened up Chernobyl beyond the official 'outsider' perspective (see section 3.8.2 of this chapter). Throughout the research I worked in partnership with professional photographers to visualise and explore Chernobyl. Interview data was analysed and coded not only upon returning from Ukraine but also while in Chernobyl. Analysis was aided and abetted through the use of research diaries that were kept throughout the duration of the research, with analysis being viewed 'as a process that stretches across the whole research project and even beyond' (Edwards & Weller 2012, 19). This enabled me to start writing sections of this thesis and research papers (Davies 2013, 2015 Davies & Polese 2015) as well as preparing for conference presentations (Davies 2010; 2011; 2014) while 'in the field', thus gaining feedback from work in progress.

3.2 Messy Ethnographies: a tale from 'the field'

> 'Writing ethnography is a serious endeavour, and it often means disregarding situations not part of its success' (Jemielniak & Kostera 2010, 325).

I foreground this methodology chapter with an example of failure in the field, where things did not go to plan. A growing body of work in human geography and beyond supports the idea that research, and especially ethnography is an inherently 'messy' process (Agar 1986; Moss 2000; Crang & Cook 1997; Horton 2008; Jemielniak & Kostera 2010; Jones & Evans 2011; Kay & Oldfield 2011) and this is something I would like to highlight from the beginning: things went wrong. As others have mentioned, the temptation to tidy up and sanitise the realities of fieldwork into digestible and persuasive chunks is an ever present and arguably necessary process, adding one more layer or filter between what happened 'on the ground' and what finds its way onto the page (Katz 1994). By 'smoothing the ragged edges of the research process' (Kay & Oldfield 2011, 1276) authors can give the illusion of a linear clarity to the frustrating fog of ethnography, hiding the confusion, self-doubt, and many mistakes that are made along the way. In response to a growing call for more honesty and reflexivity in research (Rose 1997; Burawoy 2013), I foreground this methodology section with one such ragged edge, which left me scared, cold, and extremely embarrassed:

The border guard dragged his foot through the snow, holding his machine gun. It was February 2011 and I was cold. I was standing in front of an old police van with my friends Arthur and Alexey trying to keep warm. I had never been arrested before. We were inside the Exclusion Zone, a few meters from the 'clean space' beyond the fence, on a track that runs parallel to the nuclear border. The other border guard radioed for backup.

An hour or so earlier, Ukrainian photographers Arthur and Alexey and I (a human geographer[32]) were on the clean side of the fence in a village that abuts the Zone. We were talking to a man named Danya who we had been introduced to through 'chain-referral sampling' (Cohen & Ariel 2011, 426), otherwise known as talking to people. He guided us through the trees and showed us where the hole in the fence was that he and many others said they use to illegally cross into the Exclusion Zone. It was my first time next to the fence, next to this border that so many people had described. I had been into the Exclusion Zone before, but had entered and left in the formal way, on official tours involving passport checks, tour guides, body scans and paying around £100 for the pleasure. I had first gone to Chernobyl in 2008 as a tourist, and later as part of a UN delegation visit for the 25th anniversary. Each time we had been shown the same things you see when you 'Google' Chernobyl: the abandoned Ferris wheel, the empty swimming pool in the overgrown city of Pripyat, and of course the reactor itself - for the obligatory 'nuclear-selfies'. Standing in front of this fence-hole that Danya showed us felt different however, somehow more exciting, 'authentic' (Relph 1976, 78) and full of possibility for that coveted 'consumable moment of danger' (Shaw 2011, 470) that researchers are often (though they rarely admit) preoccupied with seeking. Danya and his dog remained on the 'clean' side of the fence, as we walked in.

Geographer Cindy Katz is right to frame 'the field' as an imagined construct, stating that, as a politically engaged researcher she is 'always, everywhere in "the field"' (1994, 72). In this sense, while researching Chernobyl I may have never truly 'left' the field, if we contend that 'the field' can

[32] Though 'Human Geographer' is my official academic positionality, I will later discuss how my positionality changes throughout the fieldwork beyond this narrow and often unrecognised role. Even this academic role would sometimes slip when in the field and following Gentile (2013) I would – for ease of understanding – refer to myself amongst other things, as a sociologist.

be extended beyond its geographic place (Crang 2003). But I would argue too that I have also 'entered' the field many times over, with different degrees of certainty and embodiment. From the seclusion of my desk in Birmingham, while reading about Chernobyl or begrudgingly transcribing interviews, or (re)telling the many 'slips, blunders or funny stories' (Jemielniak & Kostera 2010, 338) from Ukraine to friends and family, I was, in some senses always 'in the field', reflexively engaging with what I had experienced. So too while boarding the flights to Ukraine with nervous excitement did I get this affectual sense of 'locating' research and entering its space. The flaneurial walks around Kyiv too, miles away from Chernobyl itself, felt like being 'in the field', where I gazed upon its communist architecture and imagined the May Day parades that occurred just days after the nuclear accident under a secret radioactive cloud, when thousands marched through the streets of Kyiv toward the now famous Independence Square - 'the *Maidan*'[33] - home of the barricades, Molotov cocktails and encampments of the 2013-14 revolution, that would bookend my time in Ukraine. The subway rides and *Marshrutka* (minibus) trips through the capital, prosaic and seemingly unrelated to my 'field' became time for reflection and people-watching [**Figure 3**], as I journeyed to-and-from an internship at the British Council or in-between interviews with evacuees and liquidators, musing on the irony of having learnt in Birmingham about the vital importance of social capital and social networks in post-socialist space (Ledeneva 1998; Round 2006; Round & Williams 2010; Walker 2010; Kay 2012) only to arrive in Ukraine myself as a lonely and bewildered outsider.[34] These all became snippets of my constructed and unlocatable 'field', that extended – like ionizing radiation - well beyond the border villages of the Chernobyl Exclusion Zone, where the majority of the 'nuts and bolts' of my ethnographic research took place.

[33] Back in 1986 the Maidan Square was known as the 'Square of the October Revolution' (Ploshchad Oktyabrskoi Revolutsyi) before being changed to 'Independence Square' after Ukraine left the Soviet Union in 1991.

[34] However lonely or disorientated I felt on these initial encounters with the field, I am well aware that as a researcher I am in a position of privilege in many ways (social/financial etc.), least of all in my ability to enter and leave the field as I please (Stacey 1997; Gray 2003).



Figure 3: *Passengers ride a bus through Kyiv, the flags from an anti-government protest can be seen reflected in the window. These first lonely voyages in Ukraine became part of my 'extended field' as I became more accustomed to everyday life in Ukraine and slowly built up my own social networks. Photograph by Thom Davies.*

The field became 'a slow yet steady accumulation of experiential findings' (Kay & Oldfield 2011,1280) - an assemblage of (un)conscious observations made just as much through mundane happenings as from the quotes, field-notes, photographs and 'observant participations' (Moeran 2009, 139) I made along the way. Sharing food and stories with people who live near Chernobyl - sound recorder in hand - certainly felt like doing fieldwork, but it was this act of physically entering the forbidden space of the Exclusion Zone that felt most of all like being 'in the field'. In constructing the field 'it is the ethnographer who draws the lines, defining in and out' (Katz 1994, 67), but here I had succumbed to the allure of this official nuclear border, and wanted to step foot where my research participants had, and perhaps in doing so gain a better understanding of their informal border transgressions. While illegally entering the Zone could be seen as a form of bucolic 'place hacking'

(Garrett 2014) where I was 'playfully probing boundaries' (ibid, 1), it was undertaken (chaotically) as a form of participant observation following many interviews that described informal journeys into the Zone. [35]

If the field is the work of our imaginations, then my field came into sharp focus here when confronted by the barbed wire of the Exclusion Zone fence, and the evergreen forest – lightly dusted in snow - that I walked through as I entered this officially toxic landscape. As researchers, we may never truly 'leave' the field, but at times we are more 'inside' than at others. There is a simultaneous 'presence and absence' (Katz 2013, 769) to the experience of fieldwork, but there are also certain moments (however unplanned and unwelcome) that remain distinct and present 'punctums' (Barthes 1980) long after they occur, and being arrested in the Zone was one of them. Robert Barthes (1980, 27) used the word *punctum* to denote an element of a photograph that has the emotional effect of 'pricking' him and punctuating his consciousness, elevating the photograph above the mundane ordinariness of most images (which he labels the *studium*). When looking at the experience of fieldwork and ethnography, there can be certain moments or experiences that, like the *punctum*, become fixed and significant in our minds, which we draw upon and keep returning to. Being arrested, for me, was an ethnographic *punctum*. As Barthes explains: 'a *punctum* is that accident which pricks me (but also bruises me, is poignant to me)' (ibid). [36]

After trying unsuccessfully to evade detection by crouching behind a small tree, the two border guards told us to put our hands in the air before searching our pockets and confiscating our documents. *'This is very serious'* one of them said to us, shaking his head, as if my already quivering hands and panicked expression suggested I thought otherwise.[37] As Gentile (2013, 432) suggests, when doing

[35] Methodologically this can be critiqued in the same way that geographers of urban exploration have been criticised – for my temptation to break the rules and 'explore everything' (Garrett 2013) thus continued the masculinist expansion of the discipline of geography (Mott & Roberts 2014) which harks back to geography's imperialist lineage and the researcher's 'adventure/danger impulse' (Shaw 2011, 471).

[36] For a short example of how the punctum can relate to research practice see Rhodes (2013).

[37] Following Kay & Oldfield's call for 'a purposeful engagement with the emotional aspects of research' (2011, 1277) which requires a degree of honesty, I must confess there was very little bravado on my part during the arrest and detention, and I found the whole experience extremely daunting. As I said into my voice recorder immediately after release (using the voice recorder like a mobile phone): '*Pretty scared actually. Pretty scary at the time, well actually now I'm still shaking if I'm honest...*'

research in the former Soviet Union especially, 'the security services are a particularly hazardous source of risk warranting careful and pragmatic' consideration. Like many, I had been stopped by police several times before in Russia and Ukraine, but rarely for anything more than a routine document check. After seeing my British passport and telling me I could be deported, the other guard threatened Alexey and Arthur: *'if you represent Ukraine in a negative way to foreigners you can receive a sentence of three years in prison'*. Crang and Cook remind us that during fieldwork 'you are likely to feel that despite your best efforts, your ethics have been compromised' (2007, 32). I began to wonder just what Crang and Cook might make of this conundrum, let alone my supervisors who I feared telling I had been banned from my 'fieldsite' and left two Ukrainians – who then occupied that awkward place between friend and field assistant[38] – in prison: hardly 'ethically pristine' (Gentile 2013, 428).

In an interview with Danya and his wife two years later in 2013, she suggested the police had probably followed our tracks in the snow: '*In winter? Aha – You left footprints – it must have been easy to find you!*' which put our behaviour into sharp contrast to the intricate and evasive tactics used by participants to infiltrate the Zone unnoticed (discussed in chapters 5 and 6). We did not have the local knowledge to operate in the Exclusion Zone informally, nor did my positionality (as an 'outsider') allow for a bribe: one border guard said to my Ukrainian companions later at the police station: *'If <u>he</u> was not with you we could have sorted this at the fence'*. In other words my presence as a foreigner (and potential journalist) had extinguished the possibility of informally negotiating our brief incarceration.[39] After he arrested us, one of the border guards even admitted '*You are damned unlucky to get taken by a foot patrol...one in a thousand'*.

[38] Now definitely friends.

[39] Other participants suggested that security was tighter than usual in early 2011 to coincide with the 25th anniversary of the disaster where the world's media would be focussing on Chernobyl, and the Zone was due to be visited by Ukrainian political figures, as well as foreign leaders including Medvedev (then President of Russia) and the head of the UN, Ban Ki Moon.

FENCE

This side of the fence
is clean. That side
dirty. Understand?

You must forget
that soil is like skin.
Or interlocking scales

on a dragon. Dirty
Clean – is all that matters
here. Imagine a sheet

of glass coming down
from the sky. It's easy
no? On this side

you can breathe
freely. Your cow can
eat the grass. You can

have children. That side
you must wear a mask
and change the filter

every four hours.
You ask – What if my cow
leans over the fence?

Personally I say
It depends which end. But
we have no instructions

for that. It is up to you
to make sure your cow
is not that stupid.

Poem*: From the book 'Heavy Water: a poem for Chernobyl' by Mario Petrucci (2004, 27)*

Waiting by the police van in winter 2011 I was getting increasingly nervous. We stood in the fading light inside the Zone for what seemed like hours, waiting for the arrival of other state 'organs' (Gentile 2013 430). '*Are you really thinking this territory is dirtier than the other side of the fence?'* said Arthur to one of the guards, pointing to the barbed wire fence that we were now standing only meters from *'...Are you going to drink milk from a cow on that side, but not from this side?* Arthur continued, with more confidence and language ability than I could muster. [40] He was echoing a conversation I had with him the evening before about the arbitrariness of a border that demarcates invisibly 'clean' and 'unclean' space. I had told Arthur and Alexey about a poem I had read in the UK about Chernobyl called 'Fence' that illustrated the strangeness of this nuclear boundary (see **poem**).

'*We are taught about different things'* replied the guard*, 'All I am telling you that it's strictly prohibited to cross the fence...I will tell you about the laws, and you can tell me about life.'* The guard drew a line in the snow with his boot and stepped over it, showing how one side was 'legal' and 'safe' and the other was 'dirty', exceptional, and banned.

More men finally arrived in three different vehicles. There were now around twenty officials in total, wearing various uniforms from different state agencies.[41] Our documents were passed around and

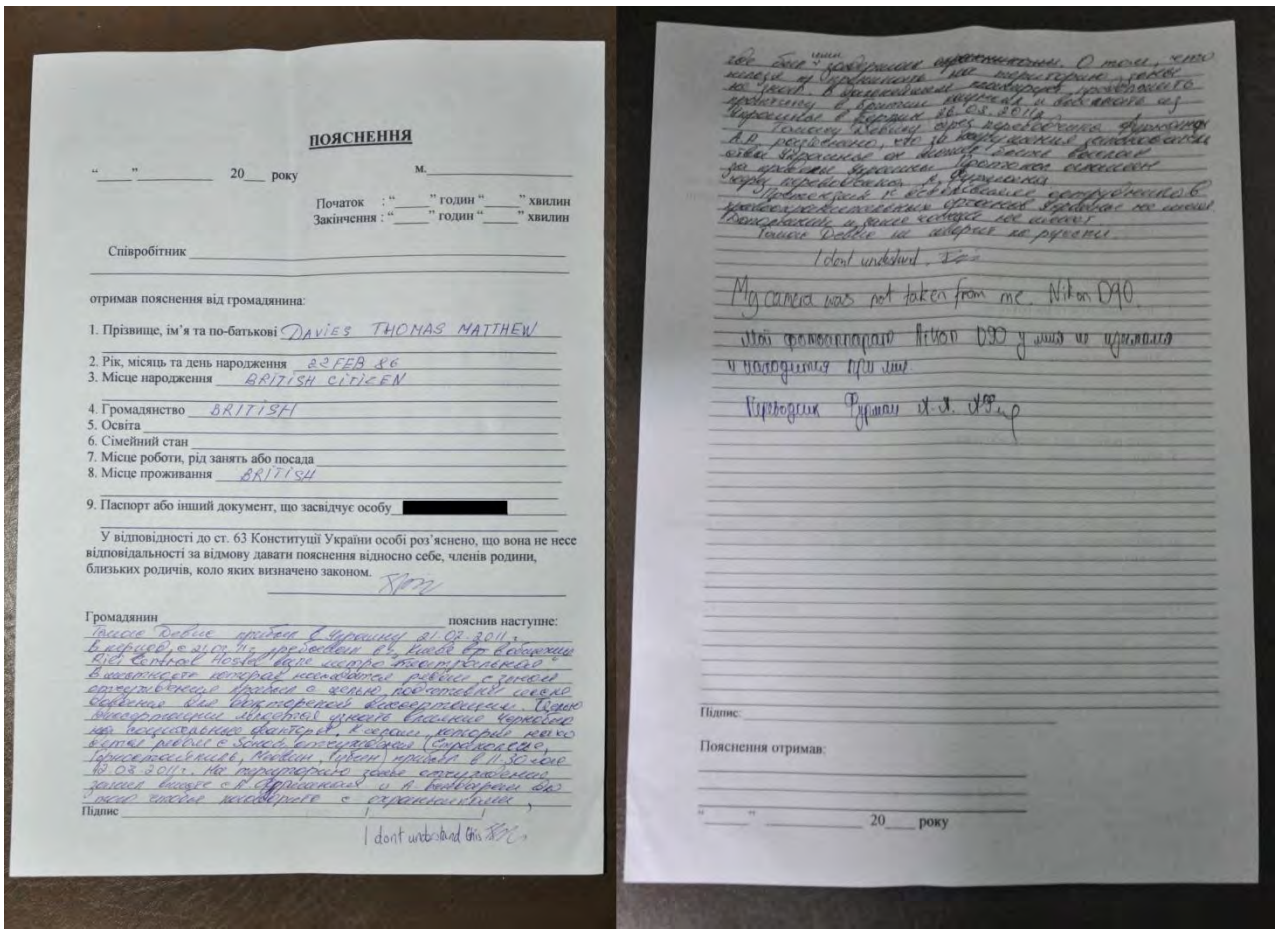
[40] The role of language and the use of interpreters will be discussed in greater detail later in this chapter (section 3.7).

[41] These included men from the State Border Guard Service of Ukraine, Ministry of Internal Affairs (regular police), and Security Service of Ukraine ('SBU'). Members of the State Border Guard Service of Ukraine were likely to have been present because the Chernobyl Zone shares an international border with Belarus.

inspected under torchlight while they discussed amongst themselves and made phone calls. A smartly dressed member of the SBU[42] asked me to '*take off your hat*' and then he took my photograph, which presumably still exists on a government computer somewhere. Of all the many photographs made during this PhD research (by myself, by the professional photographers with whom I collaborated, or by the research participants), it is this image made by the SBU officer that I would most like to see. It would show a white male in his late-twenties looking apprehensive, embarrassed and cold, his 'conferred privilege' as a researcher (McCorkel & Myers 2003, 228) slowly disintegrating.

[42] The SBU is the Security Service of Ukraine (Служба Безпеки України), the post-Soviet descendant of the KGB and equivalent to the Russian Federation's FSB. As I am foreign and the Exclusion Zone technically borders Belarus could account for their presence.

3.3 Changing power relations: the interviewer becomes the interviewee.



ПОЯСНЕННЯ

"____"_____ 20___ року м._____

Початок : "____" годин "____" хвилин
Закінчення : "____" годин "____" хвилин

Співробітник _____

отримав пояснення від громадянина:

1. Прізвище, ім'я та по-батькові DAVIES THOMAS MATTHEW
2. Рік, місяць та день народження 22 FEB 86
3. Місце народження BRITISH CITIZEN
4. Громадянство BRITISH
5. Освіта _____
6. Сімейний стан _____
7. Місце роботи, рід занять або посада _____
8. Місце проживання BRITISH
9. Паспорт або інший документ, що засвідчує особу [redacted]

У відповідності до ст. 63 Конституції України особі роз'яснено, що вона не несе відповідальності за відмову давати пояснення відносно себе, членів родини, близьких родичів, коло яких визначено законом.

Громадянин _____ пояснив наступне:

Підпис _____

I don't understand this

My camera was not taken from me. Nikon D90.

Мій фотоапарат Nikon D90 у мене не відбирали і нікуди не відправляли.

Підпис: _____

Пояснення отримав:

"____"_____ 20___ року

Figure 4: *A photograph of the 'ПОЯСНЕННЯ' (Explanation) statement I gave after being questioned at a police station. Photographs by Thom Davies.*

Transcript of the police report following my interview with the SBU officer:

> *"He came to the area which borders with the Exclusion Zone in order to prepare research for a PhD. The aim of the PhD is to discover the influence of Chernobyl on social factors. He came to the villages that are situated near the Exclusion Zone (Straholissya, Hornostaipil, Medvyn, Hubyn) at 11:30 on 2.03.2011. He arrived on the territory of the Exclusion Zone with A. Furman and A. Bondar in order to talk to the guards, where he was detained by them. He didn't know that it is forbidden to enter the Zone.[43] In the future he plans to continue a practice in Britain (illegible) and fly from Ukraine to Berlin on 26.03.2011.*[44]
>
> *Thomas Davies was informed via translator Furman A.A. that he can be deported from Ukraine for violating Ukrainian legislation. The protocol was announced with a help of translator Furman A.A. He had no complaints about the actions of law enforcement officers of Ukraine. He has no remarks and nothing to add."*

[43] I did.

[44] I flew from Ukraine to Germany to teach an undergraduate field course on visual geography in March 2011. My supervisors Dom and John were also in Berlin and to my relief were not angry I had been arrested.

Being interrogated by the officer in the police station was a dramatic role-reversal from the semi-structured interviews I conducted between 2010 and 2013. For one thing, I was the one being asked the questions. Reflexively this gave me pause for thought in terms of power relations during interviews (see McDowell 1992a; Schoenberger 1992; Rose 1997; Smith 2006). Though the interviews or 'conversations with a purpose' (Burgess 1988, 137) that I conducted 'in the field' were much less imbued with the obvious power-dynamics of a police interrogation, they nevertheless were full of a power difference of which I should be aware (Sidaway 1992; Bondi 2003; Kitchin & Tate 2013).

Relationships between researcher and researched are in some senses 'inherently hierarchical' (England 1994, 86), occupying a spectrum between exploitation and reciprocity (Turner 2013). I had entered the field and used *my* power as an outsider (albeit with permission[45]) to 'invade (other) people's private spaces to render them public' under the researcher's gaze (Crang & Cook 2007, 126). In the police station - in a space of temporary incarceration - it was me on the receiving end of institutional scrutiny, rendering me insecure, afraid and extremely wary of what I said.[46] My researcher privilege had dissolved into a pathetic statement on a legal document and I faced the potential of being banned from my field site. It is easy several years later to make academic gains from this experience, but at the time it left me extremely demoralized and self-conscious, with '*no remarks and nothing to add'*.

Despite being threatened with deportation for '*violating Ukrainian legislation',* I went before a judge a few days later and was ordered to pay a fine of roughly £30 for illegally entering the Exclusion

[45] I obtained verbal permission from all participants to be involved in this research, and explained who I was and the exact nature of my PhD. Given the post-authoritarian nature of Ukraine, obtaining written permission from respondents would have been insensitive and problematic, and getting people to sign official documents would have been off-putting, especially for non-elite interviews.

[46] Under such scrutiny by the police I was unable to be completely honest. In Ukraine as in Russia, the discipline of geography is often associated with the physical sciences (Shaw & Oldfield 2007, 120), and as such during this interview (and at some other times during fieldwork) I repositioned myself as a sociologist in order to justify why I wanted to talk to people. This follows Gentile's observation from his fieldwork in post-Socialist space that 'explaining the true nature of my work in a way that would make it understandable might require repackaging it' (2013, 428). Furthermore during the police interview, instead of explaining that I wanted to enter the Zone as a form of 'participant observation' (following a growing number of interviews that described informal border transgression) I replied that I entered in order '*to talk to the guards'*. To which the border guard replied with a wry smile '*Well now you can'*.

Zone. This snapshot from 'the field' illustrates the messy and often unpredictable realities of fieldwork. Jamielniak and Kostera suggest that too often 'admissions of blunders are removed from final reports and are considered redundant and irrelevant' (2010, 336). However by situating the research data with a more honest and candid discussion about the pitfalls of (my) ethnography, the resulting data can be better contextualised within the messy realities of everyday life. Though Blackman observes that 'few methodological accounts speak of personal failure and they are not positively looked upon by the discipline' (2007, 705), discussing my own mistakes gives the reader (as well as my reflexive self) the transparency and honesty required to reflect critically on the data as a whole and pass judgement on claims made where appropriate.

Though it was an unplanned and unwelcome part of my research practice, being arrested was also extremely valuable in terms of what I learnt from the experience – not least the 'access' I got to border guards. Amongst other things it taught me how to (re)negotiate my way around the research site, and become more aware of existing power structures that underpin life near Chernobyl. During later interviews with people who live near the Exclusion Zone it would even be used – where appropriate – to build rapport, as I confessed to participants that I too had been arrested in the Zone.

Being caught and arrested in the Exclusion Zone was the most dramatic mistake I made in the field, but it was far from an isolated blip in an otherwise smooth example of qualitative research. Instead, it became part of an iterative methodological research process where mistakes are not simply discarded but incorporated into a reflexive engagement with the field (Rose 1997).[47]

[47] While important to the construction of 'the field', it is not possible to include *all* the dead-ends and mistakes. For example a bizarre interview I had with a Ukrainian geoscientist, who to this day I have no idea how he got my email address, or why he wanted to discuss seismic earthquake detection technology with me for several confusing hours in Kyiv.

3.4 Research Approach

As this tale from the field indicates, I have chosen a qualitative methodological approach for this thesis that will allow me to explore the topical areas of interest highlighted in the preceding chapters. The broad aim of the study remains an exploration of the lived experience of Chernobyl, or to quote myself under duress '*to discover the influence of Chernobyl on social factors'*. In particular the thesis will reveal how the nuclear spaces of Chernobyl are constructed and emplaced according to social, cultural, and scientific factors (chapter 4). It explores how this framework is (re)negotiated (informally) through behaviours and practices that exist beyond the official conceptualization of nuclear territory (chapter 5/6). In doing so it will also interrogate how *risk* is central to these understandings and helps shape the relationships people have with place, and their reliance upon it for survival (chapter 6).

Given the constructivist approach to risk that was advocated in the literature review,[48] it follows that the most appropriate methods for this study are qualitative. This research approach is also in line with the focus on everyday life that underpins the research and constitutes a key theoretical cornerstone of the thesis (Lefebvre 1971; de Certeau 1984; see Round et al 2008). The research therefore makes no pretence at objectively producing a definitive account of Chernobyl, but rather a reflexively constructed narrative situated both within the researcher's and the participant's partial perspectives, where the knowledge generated can be seen as a 'situated conversation at every level of its articulation' (Haraway 1988, 594).

The ideas that participants have about nuclear spaces and the behaviours they embody cannot be predicted or constrained prior to investigation. Instead, those opinions and practices had to be observed to be uncovered. Ethnography provides the necessary toolkit with which to unpick these themes. It offers an immersive and embedded way of exploring relationships between people and place, science and society. As Horschelmann and Stenning suggest, 'ethnography is a practice of

[48] To reiterate, this does not reject the possibility of being realist about the *hazard* of radiation, but contends that understandings of its risks are *constructed* individually or by groups and institutions (see Thompson *et al* 1998)

intimate, long-term engagement with people's everyday worlds and explanations' (2008, 340). This will briefly be expanded upon in the following section.

3.5 Ethnography

The research strategy of ethnography involves participating 'in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting[49] whatever data are available to throw light on the issues that are the focus of the research' (Hammersley & Arkinson 1995, 1). The use of techniques and approaches relating to ethnography (such as in-depth semi-structured interview, participant observation, and participatory visual methods [see section 3.8.2]) follows calls from other human geographers of the region who suggest that ethnography is well placed to:

> 'offer valuable inspiration for geographers who seek to construct more pluralistic accounts of postsocialist transformation while contributing to boarder critiques of universalizing knowledge' (Horschelmann & Stenning 2008, 340)[50]

In this sense qualitative research involving ethnographic methods is well suited to provide a grounded perspective that can be used to interpret larger structures and processes, including the governance of Chernobyl, which is situated within wider post-socialist change. In addition, Goldstein (2014) argues that ethnography is adept for research on toxic uncertainties as it is able to closely analyse the lived experience of (nuclear) pollution and provide an intimate yet 'holistic portrait of contamination' (ibid, 580)

Such a qualitative approach allows for the production of a 'thick description'[51] (Geertz 1973) that can explore and reveal the researcher's (situated) understandings of place and society. In this thesis I

[49] We could refine Hammersley and Arkinson's (1995) description of ethnography further here by replacing 'collecting' with 'constructing' to emphasise the situated knowledges of both the observer and the obsevered.
[50] For a range of successful examples of ethnographic research exploring 'transition' in post-socialist space (and beyond human geography) see Burawoy and Verdery (2000).
[51] 'Thick description' was first coined by Geetz in 1973 to describe the necessarily contextualised and richly written accounts of 'our own constructions of other people's constructions of what they and their compatriots are up to' (1973, 9). For a more in depth discussion of the use of the phrase in qualitative research see Ponterotto (2006).

regularly draw upon ethnographic vignettes to emphasise and contextualise the themes I am describing. Through presenting these 'present-tense micro-narratives' (Humphreys 2005, 852) it is hoped that a richer understanding of Chernobyl is made possible. Unlike other scientific research methods, ethnography involves interaction with people where the researcher is 'not typically a detached or uninvolved observer' (Murchison 2010). This comes from the basis that the complex nature of society and culture is impossible to reduce to a sterilized laboratory setting – where even a laboratory, as Latour suggests, is not socially sterile (1986).

This lack of detachment, between observer and observed, as well as the inherently subjective and situated nature of knowledge created through ethnographic practices could be criticised as being moulded by the researcher's own perspectives, background and position within the field of study. However, as Becker (1967) discusses, the issue of partisanship is not just a possibility in ethnographic practice, but unavoidable, and 'the question is not whether we should take sides, since we inevitably will, but rather whose side we are on' (ibid 239). Having spent prolonged periods of time with marginalised communities near Chernobyl, it is with honest reflection that this thesis is written with these groups in mind. The voices of the powerless are not usually heard, compared to the credibility and authority attributed to the powerful (Becker 1967), therefore it is the oppressed who we have more to learn from (Galliher 1995; Hammersley 2000).

One way to address the skewing of data production is through being reflexive about the research process (England 1994; Rose 1997). With reflexivity however there is a balance to be struck between the feminist necessity of writing yourself into the research (McDowell 1992b) and the self-indulgency of 'the ethnographer privilege(ing) his or her own voice above those of the research participants' (Jewkes 2012, 68-69). By way of avoiding this pitfall, the next section will highlight my own (fluctuating) positionality and performances within the research. As Moss discusses: 'Self-scrutiny, individual and collective can contribute to a better understanding of and provide a clearer insight into who we are and where our world has come from' (Moss 2001, 9).

3.6 Positionality and Performance

> 'Knowing is always a relation between the knower and the known. The knower cannot be collapsed into the known, cannot be eliminated; the knower's presence is always presupposed' (Smith 1990, 33)

As a 'knower' (ibid) my presence in the field and relationships I had with those I was researching influenced what I was able to find out, and how I interpreted those findings. Not only does my partial and situated perspective affect my conclusions due to being an (inherently co-produced) 'view from *somewhere*' (Trauger & Fluri 2014, 33 emphasis added; also see Haraway 1988), 'who I am' - or appeared to be - doubtless had a great impact on the interactions I had with research participants. Such is my 'situatedness' (Katz 1992, 498; Rose 1997, 308) and partiality that - following Schoenberger (1992) - I am unable to know *exactly* what affect my differences and sameness had while in the field, other than to point to them as potential influences on the research. Factors such as age, gender, sexuality, ethnicity (etc) all undoubtedly impacted how I was perceived - and what I perceived - in the field.

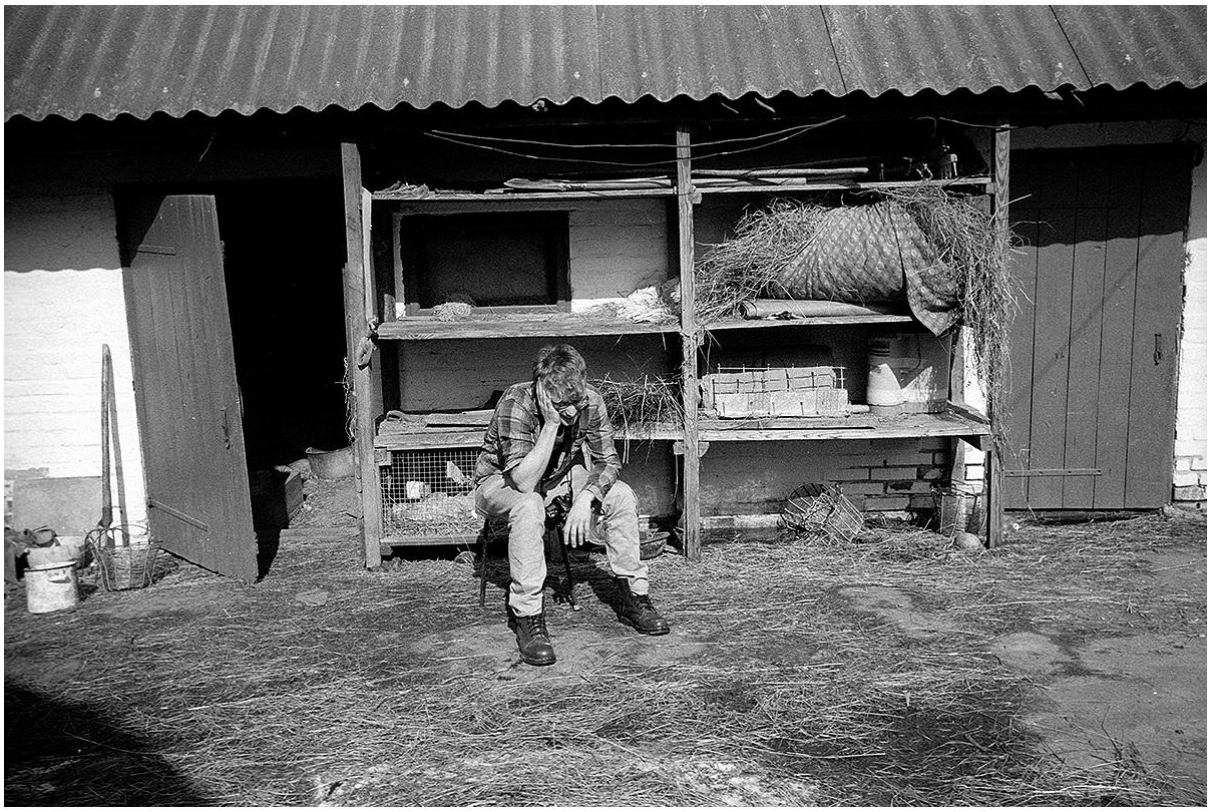


Figure 5: *A situated researcher seen 'in the field': a portrait made in late 2010 as I sat next to a barn on a farm we stayed on near the Chernobyl Exclusion Zone. Photographed by Arthur Bondar (now a photographer for the prestigious VII photo Agency).*

3.6.1 '*A Gypsy in the field'*

Nairn *et al* stress the 'importance of finding ways of researching across difference' (Nairn *et al* 2005, 226) and perhaps the most immediate difference I had to negotiate was being a 'foreigner' or 'outsider'. It can be argued that the outsider-insider binary is not a fixed status due to the fact that 'no individual can consistently remain an insider and few ever remain complete outsiders' (Mullings 1999, 340). But despite the assertion that there can be an 'ambiguity of boundaries' (Sherif 2001, 437) between researcher and researched with characteristics (age, gender, race etc.) that often 'overlap' (Dowling 2000, 33), there is also no escaping the fact that I am not Ukrainian. As we have seen, not being from Ukraine closed certain 'doors' in terms of how I could negotiate the field (such as the aforementioned case of being unable to informally 'sort out' the situation with the police at the border). However it also opened other doors in the research process - in a quite literal sense too - as I

was repeatedly invited into the homes of many people who live near Chernobyl, allowing access to people's lives that may not have been possible without the privilege of my foreignness (Scott et al 2006). Indeed far from being a blockage in rapport building, the differences between the researcher and the participant can provide the basis for cross-cultural communication and deeper understanding (Walker 2011). As I made various visits to the region over three years, my 'outsiderness' (as a Westerner) gifted me with a curiosity or strangeness that aided in brokering first encounters in the field, as well as helping me become a more familiar sight in the villages near Chernobyl as I made various visits to the region over the three years.

Even for those I got to know well during the research, I was never considered an 'insider', and my 'otherness' was occasionally commented on. For example, the owner of the farmstead I stayed on answered the phone to his friend one evening by saying '*I'm with an African Londoner*' referring to me and my outsider status. Over a meal and vodka in the evening, taking obvious pleasure in my doubtless strange questions, he conferred my difference by saying, with much laughter: '*You are a black man! You are a gypsy living in the fields!*' By invoking the familiar (albeit racist) othering of referring to me as a Gypsy, I was made 'other' or exotic, yet at the same time accepted in part due to my difference, especially in these alcohol-fuelled sessions which often involved 'exaggerated forms of masculinized language and behaviour' (McDowell 2010, 653), which my gender allowed me to participate in and perform (Datta 2008).[52]

Not only was my 'exotic' outsider identity in the field often met with questions about the UK or what I thought about Ukraine, the distance I had travelled to do the research also helped me gain rapport. Visiting north-central Ukraine from the UK showed the evident interest I had in the subject, but more importantly in people's lives and their locality - their village and their opinions about Chernobyl. Many younger participants had experience of spending time in 'the West' having spent several

[52] The role of gender performances and positionality in the research process was made clear to me when I was accompanied by a female Ukrainian anthropologist to the Chernobyl villages in 2013. Though I was by then very familiar with the research site, she gained access to conversations about the popular epidemiological understandings of radiation risk on the womb and childbirth that had not been as forthcoming to me as a male researcher.

summers in Spain on trips organised by charities for 'Chernobyl children'[53], and consequentally many children spoke some Spanish. On the whole however, the peripheral region around Chernobyl is devoid of foreign visitors, and as such there was a certain status attached to being from the West that I could utilise and perform (Walker 2011). The only other outsiders in the region were the bus loads of Chernobyl tourists who pass through the border region without stopping, as they journey from Kyiv to the Exclusion Zone itself. Interaction with these nuclear tourists is virtually nonexistent however, aside from indirect encounters where local inhabitants take advantage of the outsiders' high radiation risk perceptions by collecting their discarded clothes. As one interviewee who informally collects and sells scrap material from the Zone explained:

> *'Some people who go to Chernobyl to visit as tourists - they sometimes leave their clothes in the Zone. And sometimes we take these clothes for ourselves.'*[54]

3.6.2 *Performing the outsider: 'playing the boob'*

It was useful at times to actively reinforce my status as an outsider during fieldwork. For example, as the majority of the research took place in rural spaces near Chernobyl I would often mention how I was '*from the city*' and unused to rural life to explain my fascination with the everyday workings of the farms I visited and stayed on near the Exclusion Zone. Asking to be shown how the pigs were fed, cows milked or how food was preserved and stored - which respondents proudly did - thus accessed conversations about place, identity and risk that would directly inform my research.[55] By positioning and performing myself as someone from a city, I could use this secondary-otherness to ask ignorant questions that would lead to further insights into the evolving ethnography. Despite having some basic knowledge of farming for example, the possibility to 'feign a novice or ignorant status' (Alder 1987,

[53] Charities for 'Chernobyl children' formed the topic of my Masters dissertation (Davies 2009). In the region near the Exclusion Zone in which I conducted research, charities from Spain have 'philanthropic dominion', whereas British charities usually source their 'Chernobyl children' from Belarus. Each year, generally in the summer, charities from the UK, Spain, France, Ireland and Germany look after children who are from areas impacted by Chernobyl, claiming that the trips are good for the health of the children. While these vacations are an excellent cultural and linguistic experience for these children, the charities can be criticised for reinforcing a negative image of their own homes and landscapes for returning children.

[54] Some tourists discard their clothes after visiting Chernobyl, fearing contamination from ionizing radiation.

[55] This may have been harder to do as an 'insider', as it is commonplace in Ukraine to have some knowledge of rural living through the central role that Dachas hold in everyday life.

17) or as Douglas describes it 'playing the boob' (1976, 169) was occasionally useful to generate more information and illicit conversations that would lead to further discussions, introductions and 'snowballing' (Longhurst 2003, 109; Noy 2008, 327) in the field.

3.6.3 *Performing vulnerability*

Though the 'complex and unstable' power relations between researcher and participant during fieldwork has been widely noted (Pile 1991, 464; England 1994; Smith 2006), it was necessary at times to invoke a certain *vulnerability* during fieldwork, as well as deliberately reinforcing my 'otherness'. This was especially useful for gaining rapport with elderly participants, including the *znakharky* ('wise women' and traditional healers) I visited.[56] For example, on the day of our court appearance, that morning Alexey and I visited a locally respected Oracle woman for advice, where she also talked at length about Chernobyl. Though she said she was unable to predict the outcome of our case, after singing a prayer she told us to:

> *'Walk in with your right foot, and the judge will do the right thing. I cannot read the future today because it is my mother's death day. I am 82 years old. I heal everyone who comes, children, women, men from all the villages, I can heal almost everything.'*

During later fieldwork in 2012 I visited another traditional healer on the pretext that my eye had swollen. It was mid-Summer and the mosquitoes were everywhere during the long evenings, especially near the River Teteriv where I had been staying. One insect had bitten my eyelid the night before, which I could now barely open [see **Figure 6**]. She prescribed a traditional remedy of soaking it in urine. She would not be the last person to recommend this treatment that day. Unlike the advice to walk into the court room '*with your right foot*' – which I duly did - I did not try this traditional cure

[56] *Znakharky* play an important role in village life near Chernobyl as soothsayers and traditional healers, and were well respected figures in the community. While I encountered a lot of traditional folklore during the research in this rural region which doubtless feeds into the informal radiation risk understandings I describe (chapter 6), it is beyond the scope of this thesis to focus on folklore in detail. For an interesting overview of the folkloric culture of Ukraine, see Phillips (2004) and Golovakha-Hicks (2008).

myself. However, both these interactions that involved performing the role of a vulnerable outsider lead to several extremely interesting (repeat) interviews that directly informed the research.

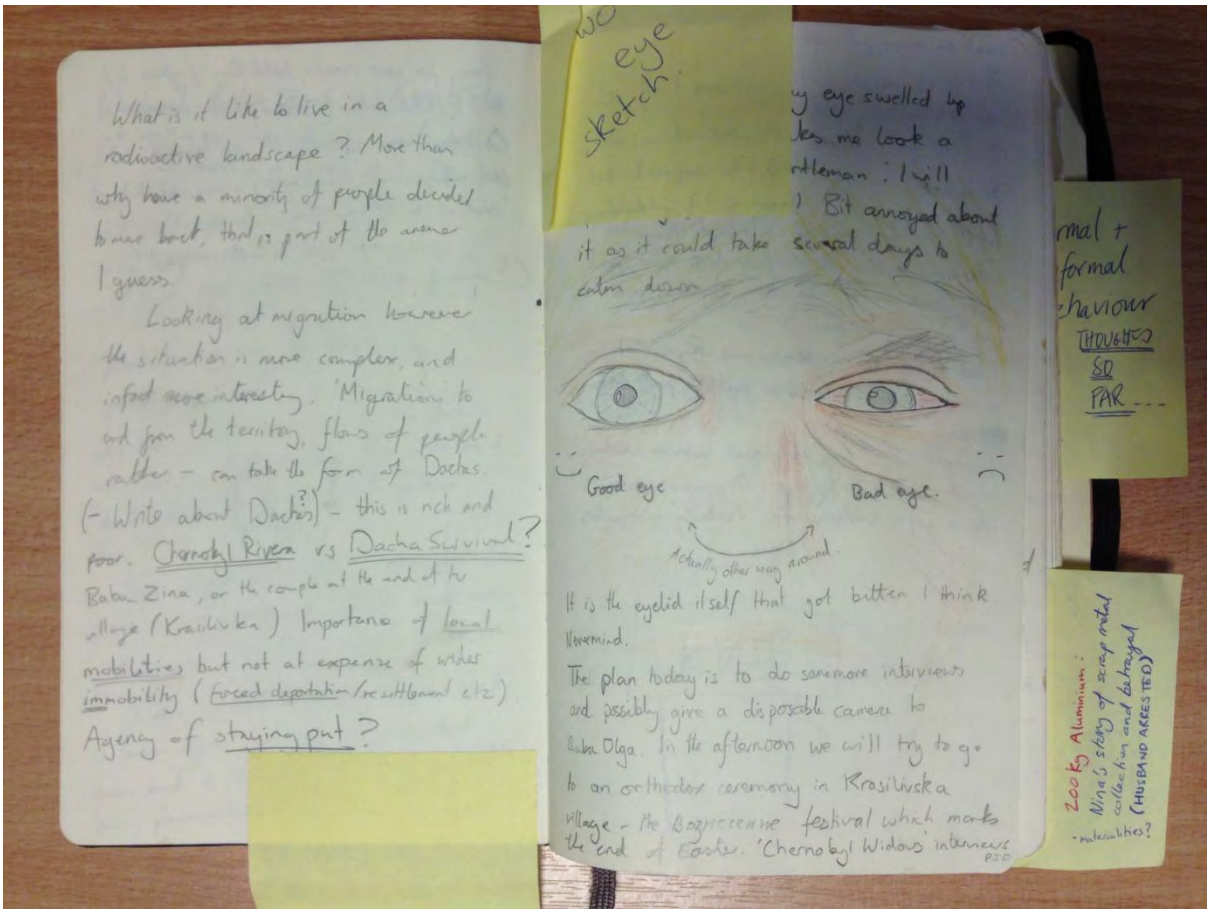


Figure 6: *Research diary sketch of my mosquito-bitten eye. These notebooks were used to record observations and thoughts about the research, but also feelings and emotions while in the places I was researching. The field-notes were useful in three distinct ways:* ***1)*** *as a practical means to record 'data' (phone numbers, place names, interview quotes etc.);* ***2)*** *an aide-mémoire during the writing process; and also* ***3)*** *a way to frontload and explore the 'immediacy and emotional impact of fieldwork' (Punch 2012, 86; see Kay & Oldfield 2011) while in the field. From a methodological perspective this also allowed me to start thinking critically about ideas and themes while already in the field, thus limiting the separation between fieldwork and write-up process (Sanjek 1990; Punch 2012).*

3.7 Access Denied

At other times however, especially in relation to the authorities, my outsider status made access more difficult. The day after I was released by the police I was followed by a plain-clothed official as I drove between villages interviewing participants, which was very off-putting.[57] A few months later I was stopped by two policemen in Karpilivka village - next to the Zone - who asked for my documents, told me I was not allowed in this 'border region' (despite being technically outside the Exclusion Zone in 'Zone 3' [see Chapter 4 for explanation of Zones]) and inspected my camera. I had foolishly left the photographs from my police statement on the camera's memory card for safekeeping (Figure 3) and consequently they asked me to meet them in another village later for questioning.

Though I was able to secure interviews with local level elites including current and former mayors, it was not possible to speak with high level political actors in central government.[58] It was possible however to obtain official information via published policy statements, legal documents and Chernobyl reports published by the Ministry of Emergencies of Ukraine as well as international agencies. It is entirely likely that any interview with elite government officials would only be echoing the official published stance listed in these documents (Round 2006). The blockage in the ability to 'study up' (Conti & O'Neil 2007, 65) in terms of interviewing powerful people in Ukraine was put into sharp contrast with the ease of access I obtained to not only 'everyday' people, but also to the United Nations, who are involved in the governance of Chernobyl. This was made possible through a formal introduction by my temporary supervisor at the Departent of Sociology at Kyiv Mohyla Academy (where I was a visiting fellow at the sociology department in 2011) who knew the head of the UNDP Chernobyl programme.

The most frustrating example of how my outsider identity closed down opportunities in the field was during the last research visit to Chernobyl in November 2013. I had met a woman who invited me to

[57] See Gentile (2013) for a discussion of the impact of state observation on fieldwork.

[58] With the exception of a Ukrainian diplomat who I interviewed about Chernobyl while at a roundtable discussion about the Fukushima disaster in Tokyo at the Foreign Correspondent's Club of Japan in 2014. This lack of access to Chernobyl elites echoes Rush-Cooper (2013) who was also denied access to Ministry officials in his research on Chernobyl tourism. Elite interviews were difficult to secure especially after the post-Orange revolution government was replaced by Yanukovich in 2010, which severed any elite contacts I had through my supervisor who had previously conducted research in Ukraine.

the Christening of her newborn child. They lived in a village called Zoryn (south of the Exclusion Zone) where her husband worked as a border guard. The prospect of spending time at the Christening with their social network that included many border guards (under more favourable circumstances than my arrest) was a great opportunity. It was especially interesting from a research perspective because the Christening was due to take place the next morning in the only working church *inside* the Exclusion Zone. Despite her husband making a few phone calls to see if it would be possible for me to enter the Zone informally at short notice without the necessary paperwork and payment for a 'Chernobyl visa', I was denied access to the Zone. Being an outsider had prevented access to this unique opportunity of participant observation and potential interviews.

That morning I sat in the lodge I was renting near the Exclusion Zone and transcribed interviews from the day before, frustrated that I could not get into the Zone because I did not have the necessary documents. I was only able to 'witness' the Christening second-hand, via the photographs my friend Alexey made (Figure 4) and the brief quotes he remembered from his conversation with the Priest and the parents, which I hastily wrote down on his return. Being Ukrainian, Alexey and the baby were allowed inside the Zone, whereas my outsider status meant I was not allowed without the necessary documents. It was frustrating that a fully grown (undocumented) outsider was prevented from accessing the Zone, whereas a new born baby (even *less* 'documented' and arguably more vulnerable to radiation) with the right connections - through her parents - could enter the Zone, despite children being formally prohibited from entering this officially contaminated space.

Despite the vicarious glimpses of the Christening that I gained from Alexey's account and his photographs [**Figure 7**], I was unable to be there myself to witness this strange affectual confluence of Orthodoxy and nuclear materiality: the journey to the Church past the abandoned fields and farms, the smell of the incense, the crying of the baby, let alone the service itself, led by a priest who would tell Alexey after the Christening that:

> *'Nobody is afraid, though there is no need to be afraid of radiation. There is no radiation here'*



Figure 7: *A baby girl is christened in St. Elijah Church, the only working church in the Exclusion Zone. The parents told Alexey that they were not worried about exposing the infant to radiation inside the Exclusion Zone, on the basis that it is probably the same level as their home village, just outside the Zone: 'We're going to the church, not the reactor' explained the mother to the guard who checked the documents at the nuclear border. Photograph by Alexey Furman, because I wasn't allowed in.*

3.7 Found in translation: coproducing the field

> 'Many authors emphasize the importance of language competence in ethnography, and they also note the new problems that are introduced when one must rely on an interpreter. Yet the literature is eerily quiet on the subject. I get the image of nervous ethnographers who are far from fluent trying not to bring the subject up'. (Agar, 1980, 101 cited in Borchgrevink 2003, 98)

There is some resonance between my reliance on Alexey's interpretation of the Christening due to my physical exclusion, with the linguistic segregation I occasionally experienced in Ukraine. During interviews I often relied upon working with interpreters, not confident in my own ability to interview

in Russian and (especially) Ukrainian without some assistance. However, it was not until I travelled to Japan to research Fukushima on a fellowship with the University of Tokyo in 2014, that I realised quite how much my knowledge of Russian - as imperfect as it is - had helped me co-construct understandings of Chernobyl during fieldwork, and develop a deeper understanding of the thoughts of my participants. In Japan my language inability felt all encompassing, my knowledge of Japanese being virtually non-existent. I held onto the perpetually 'clicking' dosimeters in the Fukushima Exclusion Zone like handrails in the dark, as they arrogantly guided me across the invisible threats of this nuclear landscape [see **Figure 8**]. The way they dutifully blurted out their radiation warnings with all-seeing certainty, had just as much omniscience to me as the Japanese interpreters I worked with, who also had privileged access to a spectrum of meaning that I could not possibly understand on my own. In Ukraine however, this sense of linguistic impotence was tempered by some knowledge of Russian[59] and a close relationship I had with my field assistants, primarily my friends Alexey and Yulia.[60]

[59] I had undertaken Russian language training in the CREES department at the University of Birmingham led by Dr Derek Averre and undertook a Russian language summer school programme in Petrozavodsk University, Russia, in 2010.

[60] Before meeting and becoming friends with Alexey and Yulia, I employed the photographer Arthur as a field assistant for the initial pilot studies in Chernobyl. I was introduced to Arthur through photographer Donald Weber, who had photographed the Chernobyl region for his book 'Bastard Eden' (Weber 2011).



Figure 8: *Arrogant devices: a photograph of a dosimeter that records the level of invisible background radiation, transferring and translating an unseen presence into a 'clicking' sound and a visual display. The sense of linguistic blindness I felt in Japan and utter reliance on interpreters while researching 'the Chernobyl of the East' was not the same in Ukraine where I had some language knowledge and a close relationship with field assistants. This is an image from the Fukushima Exclusion Zone in 2014, showing an evacuee holding a dosimeter (or Geiger counter) while visiting his abandoned home. The display indicates radiation levels roughly double the amount for safe long-term exposure. Often I did not carry dosimeters during the Chernobyl fieldwork, in part because I did not want to cause offense by 'measuring' or objectifying the people I was studying. Photograph by Thom Davies*

Of course, unlike Geiger counters, researchers 'carry out interviews *with*, rather than *through*, interpreters' (Edwards 1998, 197), who have their own positionality, agency and partiality in the field (Turner 2010). As such it would be a serious omission to 'brush aside the positionality of the field assistant or interpreter' (Scott et al 2006, 36), as is often the case with accounts of cross-cultural

research that involves field assistants. Often during fieldwork I was not a 'lone researcher...toiling independently to create knowledge for the field' (Wasser & Bresler 1996, 5) but part of a group or pair; talking, laughing, eating, interviewing, questioning, arguing, and co-producing our collective knowledge of Chernobyl. My field assistants Yulia and Alexey were both undergraduates studying journalism and photojournalism in Ukraine, which gave us a collective identity of a group of students, our age difference being negligible.

Though not professional interpreters, they were fluent in English as well as their native Russian and Ukrainian. This was useful because in this region of Ukraine Russian is the *lingua franca*, but a sizable minority prefer to speak Ukrainian, with others (especially elderly participants) speaking what Yulia described as '*Villagy Ukrainian*', which – given the region's peripheral northern location in north-central Ukraine – included local dialects occasionally mixed with elements of Belarusian vernacular. I had serendipitously met Alexey and Yulia in Kyiv while I was photographing an event marking the 67th anniversary of Kyiv's liberation from Nazi occupation.[61] I henceforth became friends with them and their social network through a shared passion for photography[62] and we therefore arrived in 'the field' of Chernobyl as friends.[63] This therefore avoided the usual researcher-assistant dilemma of payment and exploitation, and we have continued to work together on projects including writing an article in the Independent featuring Alexey's photography (Davies 2014).

3.7.1 *The Interpretive Zone*

Translation in the classic sense is the 'search for equivalence' (Müller 2007, 207) but it has long been recognised that a perfect transfer of meaning across languages is impossible and at best partial (Catford 1965). As such the interpretation I received was a partial view, one filtered through (and with) the interpreters, but also discussed collectively in the 'zone' of interpretation. Wasser and Bresler posit that 'the "interpretive zone" is the place where multiple viewpoints are held in dynamic tension as a group seeks to make sense of fieldwork issues and meanings' (Wasser & Bresler 1996, 6)

[61] Photographs from this event can be seen here: https://www.flickr.com/photos/thom-davies/5157804234/
[62] Many of this friendship group are also photographers who have gone on to establish themselves following their coverage of the 2013-14 revolution where they won several awards in photojournalism.
[63] Though our shared experiences as part of the research in Chernobyl have cemented this friendship.

and often we would discuss interviews immediately afterwards, or in the evening – going over and debating what people meant and how this is (or isn't) significant or unusual. This process of discussing interviews and experiences highlighted our 'perceptual inconstancies' (May & Pattillo-McCoy 2000) as we occasionally held differing views on what we understood and experienced. Following Cook 'et al' (1998) working with field assistants made the research an inherently *co-produced* activity.[64] This spectrum of coproduction stretched from the interviews themselves, through to the discussions afterwards, and the emails and Skype conversations we would have about experiences and conversations in the field, long after they took place. Far from being 'silenced assistant(s)' (Turner 2010, 206), Alexey and Yulia are vital to my understanding of Chernobyl.

3.7.2 *In praise of field assistants*

While it is important to be aware of the limitations of using interpreters (see Herod 1999; Kapborg & Berterö 2002; Müller 2007), there are a number of advantages to the co-presence of field assistants. Firstly I was able to obtain information that may not have been communicated to me readily if I was on my own in the field. One participant for instance, who lives right on the edge of the Exclusion Zone, when talking about the reasons why the Zone is placed in this geographic location, explained in a hushed tone to Alexey:

> *'...I can tell this to you, but **you should not translate this**: it is not just radiation, it is a huge business. In the Belarusian side there is no fence! You should understand that the political, economic and business aspect of this Zone is more important than radiation. That is why they keep the fence here. But according to the facts – this place is really clean'*

If it was just me conducting the interview it is likely that this view would have been concealed behind an (albeit polite and friendly) effort to not reveal this controversial opinion, and I would not have been able to gain this perspective about Chernobyl. While it is true that information and meanings can be

[64] Ian Cook publishes his entire academic work under the name 'Cook et al' to highlight how the production of academic output is always a collective endeavour.

'lost in translation' (Bujra 2006, 172), it is also possible that the interpreter's presence as an 'insider' can lead to further insights.

Another important role that field assistants negotiated in the field was 'provid(ing) emotional support to the interviewee' (Round 2006, 19). Due to the traumatic subject matter and personal narratives of loss and bereavement surrounding Chernobyl, participants would sometimes break down during interviews, often crying when discussing their experiences of nuclear disaster. It was therefore extremely important to have a field assistant as part of the interview process. As Round experienced in his ethnography of Gulag survivors: 'if the interviewees became upset they tended to (temporarily) "turn away" from the author and begin asking the translator about their life' (ibid). Likewise it was useful in my experience to be able to move 'in' and 'out' of traumatic discussions with relative ease through the convivial and (comparatively) 'insider' presence of Alexey and Yulia.

It was upsetting to know that my presence (and what I was researching) had caused people to become emotional and there were times where I felt 'an intermittent experience of intrusiveness' (Henwood et al 2011, 264). For example, during Spring 2011 I was invited to eat with an extended family at their local cemetery, as is the custom after Easter. An uncle (late 50s) joined us and jubilantly greeted everyone, shook my hand, and keenly asked what my research was about. As I mentioned Chernobyl his demeanour completely changed. Perhaps it was because it was approaching the 25th anniversary of Chernobyl, or perhaps that we were in a cemetery where some of his friends and family were buried, but within seconds he was in floods of tears: he explained how he had lost many friends in the early 90s when they worked as Chernobyl liquidators. Though very often respondents would also find it emotionally rewarding to discuss Chernobyl with an 'outsider' due to the 'healing powers of telling' (Tamas 2011, 4) and would frequently thank me for showing a keen interest in their stories and experiences (see Round 2006), there were still times when I felt guilty for reminding people of a traumatic past.

Arguably (and ironically) there is a danger that the more research moves away from the 'masculinist' abstraction of positivist approaches, the more likely we are to encounter the 'ethical

quandaries'(Stacey 1996, 24) of causing harm by exposing intimate feelings, memories, and understandings. I endeavoured throughout the research however to be as sensitive as possible in relation to people's emotions, and to represent them as honestly as possible. Though I operated from a comparatively privileged position - in part due to my researcher mobility (Walker 2011), my ability to leave the field site (Stacey 1997; Gray 2003), and the status attributed to foreign researchers, I made it absolutely clear that I had no power to effect change.



Figure 9: *A participant photograph of a family eating and drinking on a table in their local graveyard in a village near the Chernobyl Exclusion Zone during Easter celebrations. A few kilometres from here I was sat at a similar table and the topic of the research inadvertently made a man cry - the emotional 'trespass' (Tamas 2011, 5) of my research reminding him of a traumatic time in his life. Photograph by research participant.*

As ethnographers there is a duty to 'protect those implicated in our stories, but also ourselves' (Chatham-Carpenter 2010, 1; cf Dickson-Swift et al 2007) and in this sense the final advantage of doing research with field assistants is how they help with the emotional labour of conducting research.

Following calls for the need for 'interviewers to be aware of the effects of interviewing on themselves' (Jones 1998, 49), the emotional strain of this ethnographic research was aided by the presence of friends in the field, where we could discuss, and even find humour in, difficult and challenging circumstances (see Macpherson 2008).

3.8 Visual Methods

> 'Academia expresses itself through words – fluency of language and access to information affording power and profile. Competency in visual languages has less kudos' (Foster & Lorimer 2007, 429)

The use of photography in this thesis is part of a wider move within human geography to think reflexively and critically about the visual images we make and interpret (Rose 2003; Schlottmann & Miggelbrink 2009; Oldrup & Agervig 2012). This comes in the wake of a 'visual turn' (Thornes 2004, 787) in human geography, which comes from a growing realization that 'geography is a visual discipline' (Tolia-Kelly 2012, 135; see Driver 2003; Rose 2002, 2003; Elwood 2011; for a counter perspective see Smith 1997) and as such geographers should embrace 'the visual' in their research methods. Just as ethnographers have traditionally employed a 'thick description' (Geertz 1973, 9; Ponterotto 2006) to their writings, it is hoped that the photographs in this thesis will present a thick visualization (see Spencer 2010) of Chernobyl, especially salient given the undercurrent of *invisibility* that surrounds the lived experience of nuclear landscapes, and the inherent *unseen* radiation risks. Photography, and especially 'participant photography' (Miller & Happell 2006, 1051; Allen 2012, 443; Yefimova et al 2015), can be used to better see the realities of everyday life for those dwelling in the marginalised landscape of Chernobyl.

3.8.1 *Accessing the field through Photographers*

My original route into the field was through professional photographers. The documentary photographer Donald Weber, winner of a World Press Photo award for a photography project in the Chernobyl villages (see Weber 2011), put me in touch with a Ukrainian photographer Arthur Bondar (now working for the celebrated VII photo agency). Arthur acted as my field assistant for two pilot

studies in late 2010 and early 2011, while he continued to shoot his photography project 'Shadows of Wormwood' (Bondar 2012). I had also interviewed documentary photographer Michael Forster-Rothbart who had conducted a 'long form' photography book project about Chernobyl (Forster-Rothbart 2013). The visual landscape created by these and other photographers contributed to my imagined geography of Chernobyl before I entered the field, and they also provided valuable practical assistance and support when I was in Chernobyl, helping me access this peripheral region and introducing me to useful contacts in the Chernobyl villages.[65]

Accessing the field by using photographers as gatekeepers has two distinct advantages. Firstly there is a certainty when approaching photographers that they have indeed physically *been* to hard-to-reach places (obvious via their photos) and are not armchair commentators; secondly there is limited professional rivalry between academics and documentary photographers, allowing for the sharing of knowledge, contacts, and information, as well as opening up the possibility for collaboration (see Foster & Lorimer 2007 for a discussion of art-geography partnership).

3.8.2 *Participant Photography*

While previous photographers had opened up Chernobyl as a space in my imagination, viewing the professional images of Chernobyl, and working with photographers in the field raised questions of authenticity and representation – would I be another outsider who visits Chernobyl and represents it using only my perspective? There was a sense of abstraction between 'observer' and 'observed', making me keenly aware that these images of Chernobyl were an outsider's view. Though perfectly composed and presented as 'the expert's look' (Grasseni 2004, 20), the real expertise remained with those who actually live with the nuclear landscape being pictured. To overcome this and to gain a more intimate knowledge of the day-to-day experience of Chernobyl, I combined regular ethnographic techniques of participant observation, journal-keeping and interviews, with a participatory photography project (Davies 2013).

[65] This access technique was also successfully adopted for research in Fukushima. For example an interview with French photographer Antonio Pagnotta lead to snowballing access to illegal farmers who, labelling themselves as 'Cow terrorists', continue to farm inside the Exclusion Zone as a form of protest. As with Chernobyl, without Pagnotta's help access would have been much more difficult.

Photographic research methods, variously known as 'participant photography' (Allen 2012), 'photo elicitation' (Giritli-Nygren &Schmauch 2012), 'photofriend' (Oh 2012, 282), 'photovoice' (Wang & Burris 1997), or 'auto-photography' (Johnsen et al 2008) involves giving cameras to the people you are researching, and asking them to make photographs that help tell their own story (Sutton-Brown 2014). Over the course of the fieldwork, forty participants were given disposable cameras and asked to make photographs that would help me understand what it is like living near Chernobyl (see **Figure 10**).

Visit 1	**Visit 2**	**Visit 3**
Participants given disposable camera and shown how to use it. - *Initial interview with explanation of research and description of photography project.*	Collect cameras a few days, weeks or months later. - *Follow up interview, more rapport from initial meeting.*	Develop film and give printed photographs to participants. - *Third interview using photographs as a prompt for discussion.* *Participants keep prints.*
	The last two stages can be amalgamated if using digital cameras or smart phone technology (Mitchell & de Lange 2014).	

Figure 10: *Table showing the ideal course of a participant photography project. As shown, this is only suited to research with reasonably long timeframes and repeat visits to the field.*

The idea behind participant photography - which though a relatively new technique can be traced back to mid-20th century anthropological fieldwork (Collier 1957) - is to place the power of the image back into the hands of the marginalized. While 'many anthropologists have felt that if they could magically stand aside to let those studied speak for themselves, clarity and justice would be better served'(Carrithers 2005, 454), I am under no illusions that participatory photography fails to fulfil this fantasy. But it perhaps is a nod in the right direction, and gives participants a 'photo*voice*' (Wang &

Burris 1997 emphasis added) that is missing from the previous visual representations of nuclear disaster.[66]

Giving research participants disposable cameras to create and *discuss* their own images placed the Chernobyl residents' experience of the everyday at the centre of this research. Other academics have successfully used this technique for researching marginalized groups, including children (Joanou 2009; Hennessy et al 2010; Oh 2012) the disabled (Booth & Booth 2003; Newman et al 2009), the homeless (Wang et al 2000; Johnsen et al 2008; Packard 2008), and refugees (Green & Kloos 2009) and often find that it treats the participants 'as social actors rather than victims' (Oh 2012, 283). Participatory photo elicitation techniques have also helped overcome language differences and challenges within research (Giritli-Nygren & Schmauch 2012).[67] The following [**Figure 11**] is an example of images made by a participant during this visual research:

[66] I organised a similar smaller-scale photography research project in Fukushima in 2014 funded by the JSPS.
[67] For a discussion of ethical considerations concerning participant photography research see Wang & Redwood-Jones (2001) and Joanou (2009), and Sutton-Brown (2014) for a methodological guide.



Figure 11: *A 'contact sheet' showing examples participant photographs made using a disposable camera by a shop keeper in a village near the Chernobyl Exclusion Zone. The top left photograph shows her son getting out of bed. He is interviewed in Chapter 5 in relation to informal scrap metal collection.*

The participant photographs above, made by a single participant, were a useful prompt to discuss issues of abandonment and learn about the interviewee's relationship with place. The images and descriptions the respondent gave indicate how Chernobyl has caused disinvestment and abandonment well beyond the official nuclear spaces of the Exclusion Zone. For example, commenting on the image circled above, she said:

> *'I shot this photo to show what happens now to our country, these houses were beautiful but now they are very bad. People used to live there but now they are abandoned... People who lived in that house were working here and living here with their families, they just came for work. But when they heard about the tragedy the next day they moved'*

She chose this image as her favourite, explaining that '*It shows the result of what the government made us suffer'*, expressing the view that the impacts of Chernobyl that go well beyond radiological health impacts. Not all photographs were useable however - many were underexposed or blocked with hands and fingers (see **Figure 12**). Like discarded or unsubscribed snippets from long interviews, these images did not as directly inform the research, but illustrate the participatory nature of this visual method:

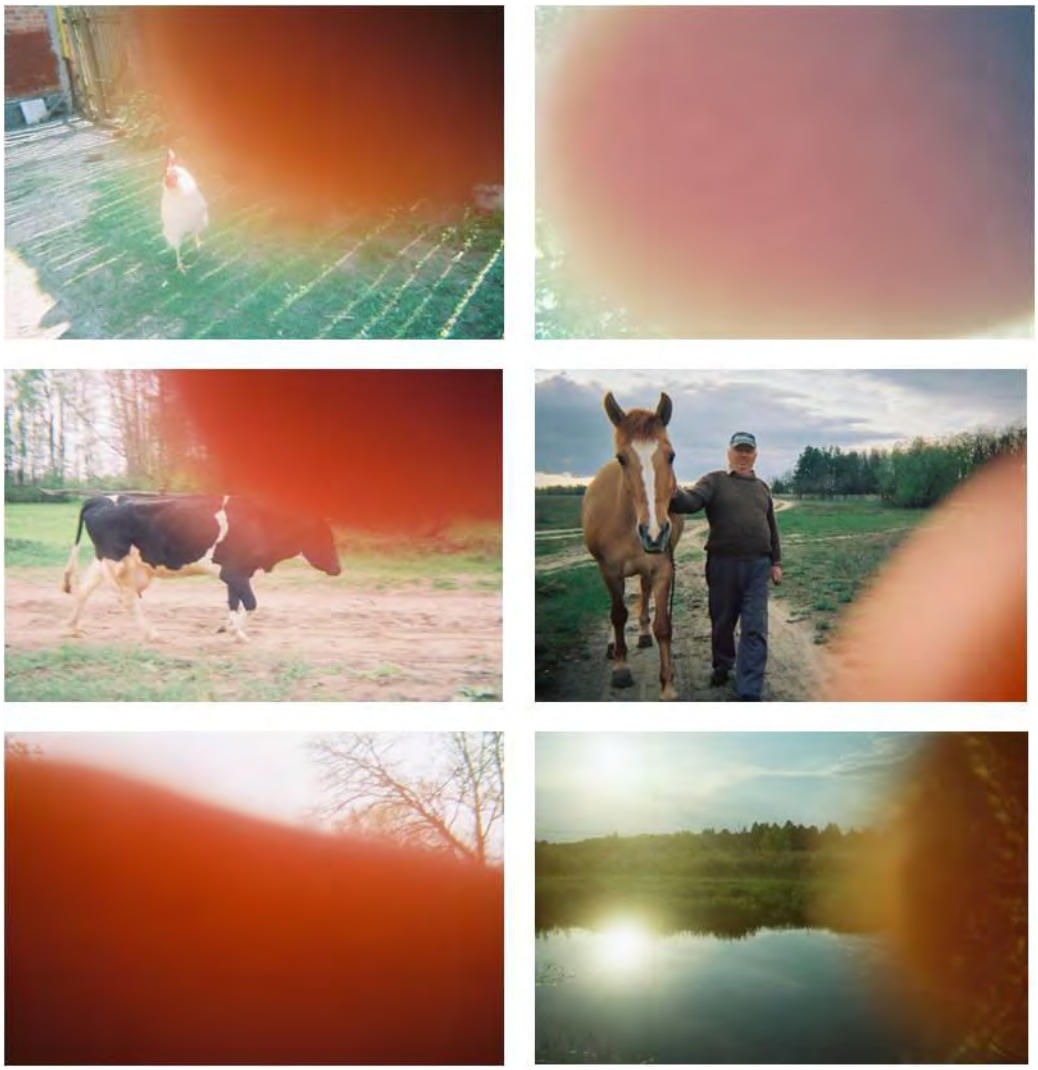


Figure 12: *Examples of participant photographs where the photographer has partially or completely covered the lens. These images are analogous to the hours of conversations and interviews made during ethnography that do not contribute directly to the completed research.*

Susan Sontag writes that '(b)etween photographer and subject, there has to be distance,' (1977, 13) and yet, when the photographer *is* the subject of the research, this distance is greatly reduced. In contrast, my 'outsider gaze' (Davies 2013, 131) shown in all of the photographs I made as well as those produced by professional photographers, was reflexively troubling. Like the official and privileged view of radiation, my photographs were offering an 'official' visual geography of life for those living with Chernobyl. The images and stories gained through participatory photography

however, were more revealing, often eliciting memories and unseen details of everyday life (examples in chapter 6).

3.8.3 *Exploring with photographs*

The use of photography in this thesis – aside from its illustrative role to the reader - is primarily methodological in approach, where the process of making and discussing photographs accessed further conversations that informed the research. In other words the research explored *with* photographs as opposed to analysing the images themselves as visual data to be critically 'deconstructed'. Although geographers have used visual images as data in their own right (Rose 2002 Thornes 2008), my main focus remains using photography to access people's thoughts and opinions about Chernobyl. Okely (1994) describes how discussing photographs during interviews produces a much richer and non-linear dialogue that both builds rapport and encourages a deeper understanding of the research: 'My argument does not extend to the exclusion of words' she says '(but) the images did some of the work for both of us in ways which adjectives and other vocabulary could not supply' (Okely 1994, 38).[68] Likewise ethnographers have found that when interviewees 'interpret and enlarge upon the photographic content, through interviewing with photographs, the potential range of data enlarges beyond that contained in the photographs themselves' (Collier & Collier 1986). The photographs discussed become larger than the sum of their parts, not only the offering the 'encyclopaedic value of the photograph' (Buckley 2014, 722) in terms of what the images descriptively 'contain', but the way photographs provoke thoughts and recollections that extend beyond the frame (Lapenta 2011).

[68] In this sense, talking through photographs offered a bridging device across linguistic and cultural differences between research and researched.



Figure 13: *In a flat in Kyiv my voice recorder (with worryingly low battery) lies on a pile of family photographs belonging to a 'Chernobyl Widow' who's husband worked as a liquidator. He died, in her view, due to exposure to harmful levels of ionizing radiation. These photographs prompted stories about Chernobyl and 'gave embodiment to a selective past which a purely verbal account would lack' (Okely 1994, 38). I met this participant at a Chernobyl memorial ceremony on the disaster's anniversary. The documents on the table show her husband's job history, and how he worked as a delivery driver in the Zone. Photograph by Thom Davies.*

My focus on photography also involved looking at family photographs I was shown by participants [**Figure 13**, **Figure 14**, **Figure 24Figure 40**,**Figure 42**,**Figure 43**,**Figure 45**]. The 'visual repatriation' (Buckley 2014, 722) of discussing images that people already possess (family albums, photos of deceased loved-ones, images in scrap books, old liquidator ID passes), led to deeper conversations that would access life narratives and trigger memories about the past connected to Chernobyl. Henwood et al (2011) suggest that eliciting narrative and bibliographic information about respondents' lives is useful to understand people's relationship with risk, and narrative interviews

have also been used successfully by academics researching post-socialist spaces (Kay 2006, 15; Walker 2014). In my experience this approach can be aided through using photographs. For example while conducting interviews with Chernobyl evacuees in Chernivtsi (Western Ukraine), the 32 year old son of the woman I was interviewing showed me a photograph. His mother had made the photo on their one visit to Pripyat since they were evacuated from the contaminated city in 1986. Taken in an abandoned building near Chernobyl, it was unlike the outsider photographs that I and other professional photographers had made. His was a deeply personal image. '*Look at the photo'*, he said [**Figure 14**]:

> *'I am here in orange. We lived in that flat. When we went back to our apartment it was completely empty—everything was stolen—apart from this one photograph. And so fifteen years later my mother took this portrait.'*

The one object that Oleg found in his old flat was a portrait of himself: a six-year-old boy wearing a Soviet school uniform and bunny-ears:



Figure 14: *A photo in a photo in a photo: Oleg holds a photograph of himself in his abandoned flat in Pripyat holding a photograph of himself before Chernobyl. Photograph by Thom Davies.*

Every photograph is by definition an image of the past and in modern society, photography and memory are closely intertwined, especially in regard to family narratives. In a two-way process, photographs act as 'ways of remembering but also as producing memory' (Roberts 2012, 92) and talking through photographs was a useful way of discussing Chernobyl. The photograph his mother took of the teenage Oleg holding the Soviet portrait of his pre-Chernobyl self is the only version they have—they had to leave behind the photograph of Oleg in bunny-ears in their abandoned flat, fearing it was contaminated. '*After we left the Zone we threw away our clothes*,' Oleg explained. Perhaps they were collected, I later wondered, by the scrap material collectors who informally enter the Zone to extract goods (discussed in Chapter 5).

Photographs were used as a catalyst for conversation throughout the fieldwork, triggering memories, eliciting thoughts and allowing me to build rapport with the research participants. Photography is not

the central focus of the research, but provides a way of approaching, discussing, and framing the research.

Not all interviews involved photographs but most interviews were conducted in a fairly informal or semi--structured fashion, allowing for the flexible nature of ethnographic research (Longhurst 2003). The use of semi-structured interviews follows proven efficacy in research in the region (Round & Kosterina 2005; Kay 2011; Walker 2014) and this interview technique enabled me to react to what people said, or the changing circumstances of the interview. In contrast, elite interviews such as the meeting with the head of the UNDP Chernobyl Programme in Kyiv were a much more formal and structured affair (Herod 1999), with my neatly prepared questions matching my neat attire (see Conti & O'Neil 2007 on dressing for formal interviews).

3.8.3 *Framing data and creating borders*

Academics should be cautious about using photography as a research tool in an uncritical way. Photographs and quotations of speech share the limitation that they are both isolated slices of information and are therefore vulnerable to misinterpretation. As Susan Sontag reminds us, 'Photographs - and quotations - seem, because they are taken to be pieces of reality, more authentic than extended literary narratives' - more authentic, one could argue, than the 'real thing' (Sontag 2003, 21). A photograph, when viewed out of context, can be interpreted in a misleading way, as can a quote from an interview, if viewed in isolation from the rest of the transcript. Photographer Garry Winogrand suggests that 'putting four edges around a collection of information or facts transforms it' (Diamonstein 1982) and the same can be said for quotation marks.

Throughout this research process I have been aware of the *bordering process* that research involves, where decisions are made to put borders around information, or to leave it on the cutting-room floor. From the point of research design, right through to the publishing and editing process, I have had to create boundaries around what I include, whose voices are heard, and which photographs (and quotations) I show - leaving disposable data in its wake. However 'participatory' the visual methods of this thesis were, and however much I wanted to include the voices of the marginalised, it is still my

situated and partial self who chooses what to include and exclude. There are multiple geographies of Chernobyl occurring outside the frame of this thesis, of which this is only one. But what I present is as honest a representation of what I have experienced and learnt as my situated positionality allows. Working with other people's words and images turns the researcher into a curator in a finite gallery space, unable to display all the information, but able to convey a story. It is hoped that by using photography as a framework for discussion, and by combining image and text, this thesis will to shed new light on the complex and ongoing process that is Chernobyl.



Figure 15: *Photograph of some of the 'research tools' used during fieldwork, placed on a map of north-central Ukraine. Including:* ***1)*** *Two phones, one used as back-up voice recorder;* ***2)*** *English Breakfast tea: one of the small gifts I brought from the UK for research participants. I also bought food such a biscuits etc. especially as I would often be offered food when invited into people's homes;* ***3)*** *Digital camera with wide-angle lens attached;* ***4)*** *Spider diagram of ongoing thoughts that would*

end up turning into my first publication (Davies 2013); ***5)*** *Two research diaries/field notebooks;* ***6)****50mm portrait lens;* ***7)*** *Voice recorder and pencil;* ***8)*** *Rolls of 35mm film;* ***9)*** *British passport (with student visa via Kyiv Mohyla Academy);* ***10)*** *Keys to the flat I was renting in north Kyiv;* ***11)*** *Susan Sontag's book 'Regarding the Pain of Others'(2003) for reading 'in the field';* ***12)*** *Map of Pripyat river aimed at fishermen (now sadly lost);* ***13)*** *27 of the disposable cameras used as part of the participatory photography project;* ***14)*** *More reading: another book about trauma, memory and visual culture (Guerin & Hallas 2007);* ***15)*** *Final draft of a paper I gave at a conference in Malaysia about Food and Risk (Davies 2011) (see chapter six for related food discussion).*

3.9 Personal danger: research embodiment

Whilst I (politely) rejected the *znakharky*'s traditional remedy of soaking my swollen eye in urine, during the ethnographic research I endeavoured to participate as much as my outsider positionality allowed. While geographers such as Garrett (2014, 2) describe their ethnographic practice as 'deep ethnography'[69] and follow Høeg's advice of '*living* it' (2005, 169 emphasis in original), I also applied this attitude to the research, in as full a way as I could. This included the prosaic day-to-day (at times dull) reality of living in the field, to the informal encounters with border guards or offers of *samagon* (moonshine) and hospitality in the Chernobyl villages. Fittingly for the empirics of this research, Turner (1997) uses the metaphor of radiation to express how the researcher can develop a close understanding of a society through long-term ethnographic exposure:

> 'Fieldwork "happens" best—often apparently by chance—when anthropologists find themselves in a situation where everything they have learnt and felt under their skin about the society—through being immersed in it for some time and having begun truly to appreciate what it values—becomes curiously irradiated' (Turner 1997, 95-96)

[69] Garrett (2013) does not define what he means by 'deep' ethnography, but one assumes he is re-emphasising the importance of participation during ethnography, as opposed to dethatched observation.

In a very literal sense too, during this fieldwork the prospect of becoming irradiated was an ever-present threat, and one that required critical reflection. In 2012 I sent an early draft of a research paper (Davies 2015) to an academic who researches nuclear landscapes. She ended her email reply with:

> *'ps. I don't like reading about your eating that scavenged food. Can you bring along some power bars?'*

I had decided early on in the research process however that if I was to get close to understanding what (everyday)life is like in a nuclear landscape I should adopt the same practices as my research participants, which included eating potentially risky foods. As I was spending prolonged periods of time doing fieldwork it was important from a methodological, practical, and ethical perspective to eat what I was offered. Practically it would have been near impossible to conduct the embedded research by taking my own food and drink (or '*power bars'*) into the field. Ethically it would also have been problematic to refuse to eat the food that I was generously offered. As far as possible I did not want bring my own risk perceptions onto those I was researching and did not want my 'consumption identity' (Cherry et al 2011, 231) during fieldwork to be someone who refuses the hospitality of strangers.

Previous scholarship has tackled the issue of contentious researcher-researched food dilemmas by focussing on vegan and vegetarian academics (Taylor 2010; Cherry et al 2011) who have to suspend their diet principles by eating the same food as their participants in order 'to mitigate power differentials in research (MacDonald & Montford 2014). However beyond the (albeit important) notion of becoming personally morally compromised, this act of moral-suspension by vegan researchers does not pose a potential health risk to the researcher. However I wanted to avoid the scene presented in this sensationalistic BBC photo [**Figure 16**] which objectifies the everyday survival practices of people who live with Chernobyl:



Figure 16: *BBC Travel twitter article 'Would you dare try it?' showing a reporter in a full 'Haz Mat' suit, mask and gloves, holding a Geiger counter at arm's-length towards elderly lady near Chernobyl as she eats from a bowl. I tried to live in a similar way to participants and unlike the BBC picture, did not wear protective clothing or (usually) carry a dosimeter, as this would be considered offensive and is largely unnecessary. Image via Twitter.*

Methodologically it was important to eat the same food as those I was researching in order to foster rapport. [70] The central role that food plays in building connection between individuals and groups is well documented (Tatlor 2010; MacDonald & Montford 2014), with human geographers even designing whole research strategies that centre around building rapport with respondents through food (Longhurst et al 2009). With anthropologists and ethnographers writing endlessly about the importance of hospitality (Conrad & Morrison 2000)[71] and the central role that food plays in

[70] This is against the backdrop of counter-scholarship which questions the widely held assumption that rapport and negotiating-difference is essential to producing good data (see McCorkel & Myers 2003; Smyth & Mitchell 2007), with some arguing that it is sometimes useful to have an antagonistic relationship with your research participants (Knowles 2005).

[71] Cynically, one can wonder if anthropologists are right to place to so much emphasis on the importance of hospitality within the cultures they research (Conrad & Morrison 2000). Given anthropologists' utter reliance on the hospitality of the communities they research, it is no wonder that academics privilege, emphasise, and exalt the cultural importance of accepting strangers. They simply do not have access to those who are not hospitable.

'expressing social solidarity' (Beardsworth & Terea 1997, 110), it is no surprise that some of the most rewarding interviews were conducted while sharing food. This was especially the case for interviews where food risk was the topic of conversation. The interviews about food risk (see Chapter 6) were much freer and open while I was actually eating the food in question, sat in the homes of the participants. By eating I was performing a non-judgemental attitude towards the food, which put people at ease as I was embodying the subject matter of the interview [**Figure 17**]. Food narratives became central to the ethnographic vignettes that formed my understanding of Chernobyl, and appreciation of people's complex relationship with risk and place (Davies 2011). My own risk understandings were heavily shaped by those I spent time with during fieldwork, and as a researcher I was just as much susceptible to the 'normalization' of risk as the communities I was researching (see Chapter 6 for discussion of risk and place).



Figure 17: *A plate of fish and potato soup next to a voice recorder and pencil on a table in a home near the Chernobyl Exclusion Zone (this meal is mentioned in Chapter 6). Photograph by Thom Davies.*

3.10 Conclusion

In order to understand the lived experience of Chernobyl and address the research aims of the thesis I have adopted a qualitative approach that has employed various ethnographic techniques. Following a feminist approach to research methodology, I have situated my positionality within the thesis, which has impacted how the data was constructed. This chapter is an attempt to justify my approach as well as providing an honest and critical discussion of the difficulties and 'messy' challenges of fieldwork (Kay & Oldfield 2011, 1277). To restate the point made earlier, the process of research has not been straightforward, even if I am guilty of writing it as such in the following chapters. Throughout the research, from before entering the 'extended field' (Cook 2001), through to the fieldwork experience

itself, and the write-up process, I have endeavoured to remain as reflexive as possible about the research process.

Chapter 4: ***The Construction of Nuclear Space***

The Ukrainian flag is an imaginary landscape. The yellow and blue supposedly symbolise the endless fields and blue skies of a Ukrainian rural idyll. On a clear day, gazing north near the border with Chernobyl, one can be forgiven for being taken in by this 'imagined geography' (Gregory 1994) – with yellow unploughed fields stretching out to the horizon. The illusion is broken however, by a distant strip of green conifer trees where the sky meets the earth. Beyond these trees lies the Exclusion Zone. [72]

This chapter will reveal how an official geography of Chernobyl has been constructed and negotiated in the wake of the nuclear disaster. It will demonstrate how 'nuclear space' is not something that just appears on the landscape, but is something that must be actively *constructed*. It will suggest that the formal spaces of Chernobyl's polluted region were not made through techno-scientific certainties, but were emplaced through a spatialized practice of 'nuclearity' (Hecht 2014) – where social, cultural, political, *and* scientific forces intertwine to produce what is and what is not 'nuclear'. Therefore the border between 'nuclear' and 'non-nuclear' space is not an entirely fixed reality, but part of a negotiated process.

The chapter will suggest that the Chernobyl zones are spaces of control; strategic efforts to geographically limit and bound the impacts of Chernobyl, to 'contain' the uncertainties that surround the accident. This is ultimately to control risk. The chapter will also posit that this formal top-down approach can be framed in terms of de Certeau's concept of the 'strategy' of the powerful (1984). This strategic management of space, with its official rules and 'grammar' leaves the territory of Chernobyl open to reinterpretation and resistance by individuals through tactical and informal understandings and behaviours.

4.1 Prelude

In her office in the small village of Orane, south of the border fence, the mayor described how the village got its name. She said it came from the old Ukrainian word 'Orati' [орати] meaning 'to

[72] Sections of this chapter have been published in Davies (2014).

plough'. The soils here, she explained proudly, are particularly fertile. On learning that I was a geographer she immediately produced a large map of the varying soil types in the village [**Figure 18**]. The map showed the level of fertility in the local soils, and which crop would suit each place best. I had reluctantly been taught the Russian word 'chernozem' [black earth] during a very dull school-geography class about soil, and had never thought it would come in handy. The map dated from the late Soviet period and was clearly designed with the collective farm in mind, which now stood abandoned and largely overgrown on the outskirts of the village. Many fields are left uncultivated in this region, free from the plough or the many cattle that used to be farmed here when dairy and meat production accounted for 80-85% of agrarian output in this region (Hostert et al 2011). That was of course under the subsidised Soviet system. Today, domestic production is the most important source of food, grown on small holdings and 'subsistence dachas' (Southworth 2006, 454).



Figure 18: *A map of Orane village* [Оране] *is splayed out on the mayor's desk in her office.*

'*Chernobyl is in this direction'* explained the mayor, walking over towards the window of her office, leaving the map positioned on the desk. *'We are exactly 35km from the reactor, 5km from the Zone*'. Arms out stretched she gestured that where she stood, relative to the map on the desk, is the fence to the Exclusion Zone. She explained that between herself and the desk is land where you are allowed to live, but everything behind her – through the window and beyond this imaginary 'safe space' in her office, was off-limits.

Over the course of many research trips in 2010 - 2013, I conducted participant observation and interviewed many people who live in the space between the Mayor and the desk: People who dwell in Chernobyl's liminal hinterland around the Exclusion Zone, in territory often just as contaminated as land beyond the fence. This highly-contaminated bucolic backwater is characterised by widespread economic and social marginalization, exacerbated by Chernobyl – but not entirely divorced from the wider impacts of post-Socialist 'transition' evident across rural Ukraine. These villages exist in an enforced post-Nuclear border territory outside the Exclusion Zone, but inside Chernobyl's far-reaching sphere of influence. A place forever bound through memory, half-lives and post-Chernobyl governance to events that occurred at Reactor No. 4, some 35km from where we now stood. The Ministry of Emergencies of Ukraine describes the region outside the confines of the Exclusion Zone as suffering from 'accelerated degradation' (2011, 188) owing to its proximity to, and contamination from Chernobyl. An official space of threat - this anti-therapeutic landscape is ominously described by the same government agency as a 'zone with an increased risk of living' (MOE 2008, 8)

4.2 Towards an Official Geography of Chernobyl

In April 2011 at the United Nations conference marking the 25th anniversary of Chernobyl, the Secretary General of the Council of Europe, Thorbjørn Jagland, reminded the distinguished guests, and myself, that '*the Exclusion Zone is bigger than a few of the states of the Council of Europe'*. He had a point; the scale of the Exclusion Zone is vast. From a governance perspective, there are in fact four Chernobyl 'Zones' [see **Figure 19**]. The first two zones cover approximately 2600km² and comprise what Jagland was referring to: an area of land roughly 30km in radius in

which it is officially prohibited to live and conduct economic activity – also known as the '*Zone of unconditional (mandatory) resettlement*', or more commonly, simply '*The Zone'* [see **Figure 20**].

Figure 19

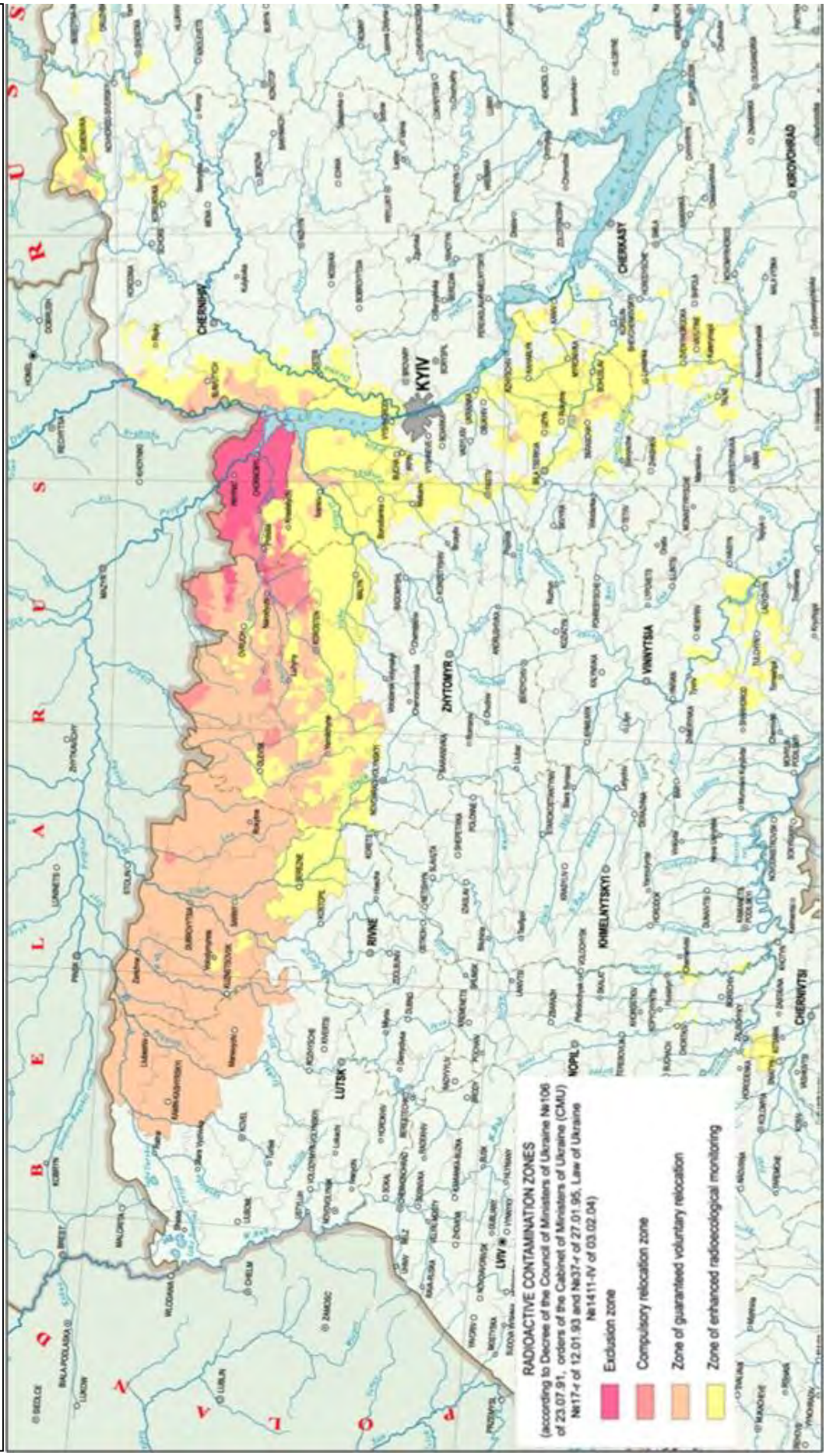


Figure: *Map of north West Ukraine showing the four Chernobyl Zones according to Ukrainian legal regulations (Ministry for Emergencies of Ukraine, 2011a)*

Figure 20

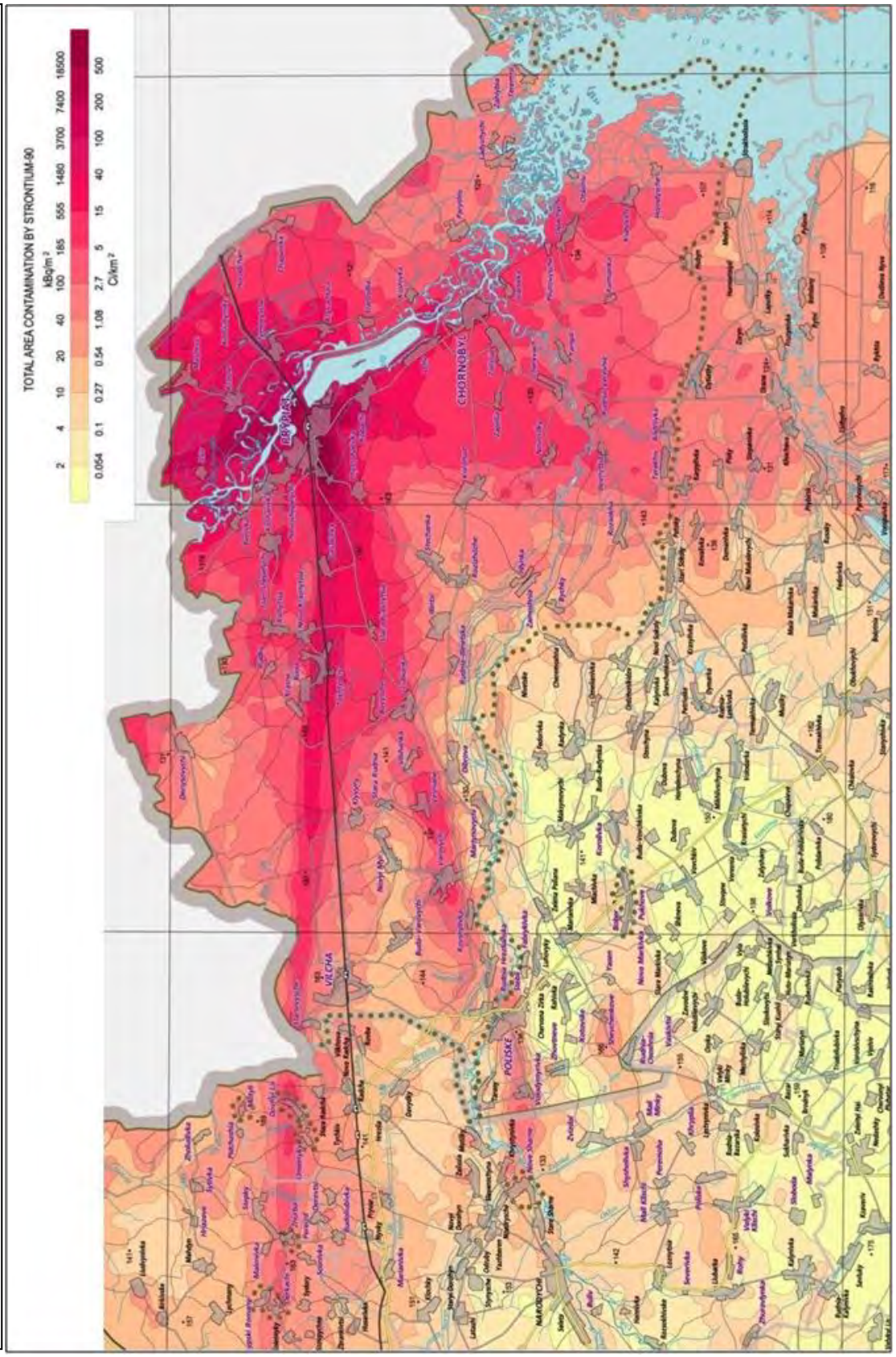


Figure: *Map showing the outline of the Exclusion Zone (green dotted line) and evacuated settlements (purple text) overlaying the total area of Strontium contamination on 10th Map 1986 (Ministry for Emergencies of Ukraine, 2011a)*

The Exclusion Zone is a highly irradiated area covering a region of north-central Ukraine roughly the same size as Oxfordshire, making it three times larger than Kyiv, the capital of Ukraine. The political border with Belarus forms its north and north-east extremity[73], and a 'natural' boundary creates its border to the east, where the Prypyat River flows into the Kyiv-Sea and the Dnieper. The town of Strakholissia which is just outside the Zone on the banks of the Kyiv-Sea is the Zone's south-eastern limitation, from where a six foot barbed wire fence stretches west, past the main checkpoint at Dytiatky to the border village of Novi Sakoli. From here the fence, which is patrolled by border guards or 'militia' who prevent illegal entry into this forbidden territory[74], then curves north again to the banks of the river Vuzh, before following the contours of this watercourse further west, past the abandoned town of Poliske. The western limitation of the Exclusion Zone is formed by the regional administrative border between the Kyivska and Zhytomyrska Oblasts, it then zigzags its way back up to Ukraine's northern border with Belarus. Within this territory some 188 settlements and two cities were forcibly evacuated in the days, months and years following the disaster, displacing many hundreds of thousands of people who were resettled across wider Ukraine and the USSR (Ministry of Emergencies 2006; Ministry of Emergencies of Ukraine, 2011a).

Several forcibly-abandoned settlements also lie outside of the Exclusion Zone, in pockets of outlying areas of very high contamination. The ten day fire and nine mile high plume of smoke that followed meltdown has left a sporadic and patchy pattern of pollution across parts of north-central Ukraine that often defies the neat boundary drawn up by the Exclusion Zone cartographers. Several kilometres from the Zone some abandoned settlements are enclosed in their own barbed wire, such as Bober, Pukhove and Zhurba villages, which exist like a polluted archipelago in a sea of less contaminated space. These places share the same legal status as the 'mainland' of the Exclusion Zone-proper.

[73] Roughly 70% of the Chernobyl contamination went north to Belarus. However, while it is beyond the scope of this thesis to discuss how Chernobyl has been handled by Ukraine's northern neighbour, it is obvious that the areas of highest contamination did not stop at the political boundary. The thesis will focus only on the situation in Ukraine. For more information on post-Chernobyl governance in Belarus, see Kuchinskaya (2013).

[74] The first Zone is the 10km inner core within the Exclusion Zone, and contains the majority of the most harmful contamination. When visiting the Zone to work or as a tourist, there is a further checkpoint once you get to this boundary.

Beyond the Exclusion Zone and its satellite-abandonments are two more legal 'zones' [see Figure 4.2]. Zone three is the '*Zone of guaranteed voluntary relocation*' where, in theory, having chosen to leave you would be entitled to a guarantee of resettlement paid for by the State. Finally, the forth zone is the '*Zone of enhanced radiological monitoring*'[75]. According to the Ministry of Emergencies of Ukraine, as of 2007[76], over 2 million people occupied territory in either Zone three or four (see Figure 4.4). This is more people than the entire population of Latvia. The geography of these two zones is also expansive, with territory of the '*Zone of guaranteed voluntary relocation'* stretching as far west as just 100km from the Polish border in north-west Ukraine, and large pockets of the '*Zone of enhanced radiological monitoring'* even being located several hundred kilometres south of Kyiv. Altogether, according to Ukrainian law, 2293 settlements covering twelve regions of Ukraine are officially categorized as impacted by Chernobyl (Ministry of Ukraine of Emergencies and Protection of Population from the Consequences of Chernobyl Catastrophe 2008)

The majority of the participants interviewed in this thesis live in territory of Zones three or four, on land no more than six or seven kilometres from the physical border of the Exclusion Zone fence, and often directly adjacent to it.

	Total	**Zone 1**	**Zone 2**	**Zone 3**	**Zone 4**
Number of Settlements	2293	76	86	841	1290
Population	2,155,1129	0	4513*	603,951	1,546,665
Area of territory (km^2)	53500	2100	1800	22900	26700

Figure 21: *Table showing the number of settlements, area, and population of each Chernobyl Zone, according to legislation. *This figure largely consists of the thousands of scientific workers,*

[75] Hence forth, unless stated, 'the zone' will be used to refer to the Exclusion Zone only.
[76] This is the most recent data on population available.

maintenance labourers and contractors who live semi-permanently and work in shifts in less contaminated areas of the Exclusion Zone. Table based on data from January 2007, from Ministry of Emergencies of Ukraine, 2011a, 42)

4.3 *Containment: creating geographic certainties*

After the disaster, the 'Zoning' or partitioning of Chernobyl-affected space into four legal territorial regions was part of an attempt to create 'an image of containment' (Petryna 2002, 49). This aimed to conceal the widespread confusion, State failure and huge demographic dislocation that followed the accident. Zoning meant the creation of geographic 'certainties' on an ambiguous landscape. Though the State was unable to control the atom, it would at least be able to control the space (and people) in which radiation had spread, creating a space of exception where different laws and behaviours would apply.

In order to create geographic certainties, one of the first priorities of the Soviet State was the need to 'see' radiation; to convert the unknowable and invisible 'into readable spaces' (de Certeau 1984, 38). Cartography was key to this process and 'tremendous resources of the Soviet Union were involved to develop maps' (Ministry of Emergencies of Ukraine 2011b, 204). As de Certeau explains, key to the 'strategy' of the powerful is 'the mastery of places through sight' (de Certeau 1984, 36) and no expense or measure was spared for this task of making radiation 'visible'. Hundreds of scientists took radiological readings at ground level, as aircraft equipped with gamma spectrometers flew overhead (Ministry of Emergencies of Ukraine 2011b). Within just 10 days of the disaster the first maps were created and the authorities began to work out how they would carve-up north-central Ukraine between 'dirty' and 'safe' space.[77]

This zoning of Chernobyl territories, which is still in effect today, follows the 1991 law '*On Status and Social Protection of Population Suffered from Chernobyl Catastrophe*'[78]. In this law, Article 2 defines the various zones according to the amount of radiation in the soil (plutonium-239, caesium-

[77] These first maps have never been made public. Later maps, similar to Fig 1 were declassified in 1990 (MOE 2006).

[78] This is the English translation that official Ukrainian documents use, however a more suitable translation might simply be 'Social Protection for those impacted by the Chernobyl disaster'

137 and strontium-90) and the estimated yearly dose that an individual would be exposed to [see **Figure 22**]. For example, for an area to be assigned as 'Zone 3', where people are entitled to re-housing if they choose, then the estimated dose should be no more than 1 millisievert (mSv) per year, and so on.

	Zone 1 -2	**Zone 3**	**Zone 4**
Estimated Annual Dose (mSv)[79]	5.0	1.0	0.5
caesium-137 Ki/km²	15	5 - 15	1 - 5
strontium-90 Ki/km²	3	0.15 - 3	0.02 - 0.15
plutonium-239 Ki/km²	0.1	0.1 - 0.01	0.005 -0.01

Figure 22: *Table showing the permissible level of contamination of three isotopes and estimated annual dose for Zones 1-4. Table based on data from Law of Ukraine of February 28, 1991 No796-XIII 'On Status and Social Protection of Population Suffered from Chernobyl Catastrophe'. This law is still in effect today.*

Soils were measured by officials who also took radiation readings from food produce in each settlement, specifically milk and potatoes. People themselves also became potential containers of radiation, and scientists measured the 'radionuclide content in [the] human body' (Ministry of Emergencies of Ukraine 2011a, 257). Potentially damaged people became further sources of data from which the State could map the post-Chernobyl landscape, in a process summed up by one boy who was hospitalised after Chernobyl as 'dying to become science' (paraphrased from Aleksievich 1999, 225; Kuchinskaya 2013):

'*We had to give many blood samples, and there were a lot of problems with the children because they were a bit afraid of having their blood taken everyday*' explained Sveta, who lives near the Exclusion Zone.

[79] Annual acceptable radiation dose is based on a projected lifetime exposure of 70 years. Using the most recent 2011 statistics the life expectancy in Ukraine is 65/76 for men and women respectively (WHO 2014).

Based on these maps and measurements, each settlement was assigned a category in a process described as the 'comprehensive dosimetric passportization of settlements' (Ministry of Emergencies of Ukraine 2011b, 42). The categorization of places according to 'permissible dose' was designed to control the risk to the human body, however, as the next section will demonstrate, the creation of exceptional spaces had other advantages.

4.4 *Nuclear Absolution: creating spatial binaries*

The Exclusion Zone is first and foremost a space of control. The effort to demarcate, curtail and constrict the movement of people gives the illusion that radiation is also confined: 'Othered' behind the protection of barbed wire and legal boundaries. The zoning of the Chernobyl landscape attempts to cleanse or sanitize space through controlling it; to put order to disorder. The emplacement of an Exclusion Zone also served as a symbolic barrier between human life and nuclear uncertainties, with the creation of a physical space that would embody nuclear pollution. By creating a dedicated space that was officially 'dirty', it *absolved* the rest of the USSR (and later Ukraine) from the worst tarnish of nuclear disaster. Although contaminated territory could not be physically banished from Ukraine, by creating a legal 'space of exception' (Agamben 2005) within Ukrainian territory, 'contaminated' and 'uncontaminated' became fixed categories in place; spatial binaries that conceal the ambiguities relating to nuclear disaster.

The boundary formed by the Chernobyl Exclusion Zone challenges the conventions of the traditional border, where borders are usually perceived as 'institutional mechanisms aimed at protecting what is inside, by excluding whatever originates from the outside' (Newman 2006, 150). This internal-external dichotomy is challenge by the Zone, which aims to protect people through their very exclusion.

4.5 *Displacing Radiation*

The bounded space of the Zone would, symbolically at least, attempt to hold back the thousands of unanswerable questions about the impact of the tragedy on human life, and put structure to the chaos that was unfolding in north-central Ukraine. Indeed, the process of making nuclear

radiation 'visible', by erecting fences, paradoxically made it 'disappear': shutting it away in the apartheid of 'officially clean' and 'officially dirty' spaces and bodies. By making it only possible to 'see' radiation in certain places made it officially disappear from others; a disappearing act that Gabrielle Hecht, from her work on the uranium mining industry (discussed further in section 4.6), does not see as *passive* process but something that 'takes work' (Hecht 2014, 94). In this way, putting radiation 'in place' inherently displaced it. Kuchinskaya discusses, from her research in Belarus, how invisibility is something that can be actively produced, by adopting 'practices that displace radiation and its health effects' (2007, xiii). I would argue that the Exclusion Zone, as a constantly reproduced and performed site of radiation – is one such practice.

At first reading, this attempt to constrict and bound space runs counter to conceptualizations of place as performed events that are continually reproduced. As Cresswell discusses, 'place as an event is marked by openness and change rather than boundedness and permanence' (2004, 39). The barbed wire fence and pan-generational half-lives of nuclear pollution conspire to produce a picture of immovability, rooted in the unsuppressed certainty of the Exclusion Zone. However, the way that the Zone is performed, understood and interacted with - for example where individuals (and radiation particles) are able to tactically ignore the Zone's confines, leans towards a more unbounded and performed reading of the space. In this way the Zone becomes no more than a grid upon which individuals are able to behave, often in ways that were unintended (de Certeau 1984): the performed tension between 'a systematic grammar of space ...on the one hand and our ability to use this grammar in ways which are not predetermined' on the other (Cresswell 2004, 39). Chernobyl can be read as a process[80], and one that is still affecting people's lives to this day.

Dobraszczyk maintains that it is Chernobyl's concrete 'sarcophagus' that has become the 'primary symbol of the accident for those still living with its consequences' (2010, 375-376). While I would agree that the image of the reactor is a clear visual icon for the outsider's gaze, experience from this research suggests that it is the bounded space of the Exclusion Zone itself that forms the most potent

[80] This follows Massey (1994) who makes a comparison between capital and place, saying both can be seen as not 'things' but processes.

symbolic function; its checkpoints, laws and most importantly the fence itself re-orders space through people's relationship to it.

For people living in the region today, the Exclusion Zone remains a key point of reference - both physical and imaginary. It is a place infused with meaning, serving a range of symbolic purposes – either as justification by some for a low-risk perception of living on Chernobyl-affected territory: '*It's not dangerous [here], we are not in the Zone*' (Babushka, Medvyn village, 20 meters from border fence), or conversely as an explanation for why some believe they are victims of the disaster: '*Of course I am a Chernobyl sufferer, the Zone is only 3km away*' (Ex-liquidator, Fedorivka village, 3km from border fence).

It's a geographic truism that all maps lie (Monmonier 1996). Any map presents only a selective reality – an 'imaginary totalization' of space (de Certeau 1984, 93). Post-fallout maps are especially loaded however, as they present a reality that cannot be contested by human senses. At one level it is easy to label the State's ability to map and 'see' invisible radiation as a practice of *panopticism*, with its technology and clandestine cartography. Indeed from afar, like de Certeau's critical view of the regimented city (de Certeau 1984), these nuclear spaces of control appear orderly, simplified, and sanitized. They create geographic binaries purifying space; distilling its contents between officially pure and officially impure territory and bodies. However, the division and categorization of 'nuclear' and 'non-nuclear' things needs unravelling. Defining objects and spaces as 'nuclear', I would argue, is far from a passive and purely empirical endeavour that is divorced from the political, social and cultural power structures from which it takes place (Hecht 2010). This is not to suggest that nuclear things do not have their own unique scientific properties, but simply that these properties alone 'do not by themselves determine the nature or power of "nuclear" things' (ibid, 15).

The official nuclear spaces of Chernobyl are not completely fixed according to technical risk assessment, but are in fact open to negotiation and are somewhat unbounded in their construction. Before some examples of this pertaining to the location of the Exclusion Zone fence, it is worth revisiting Gabrielle Hecht's idea of 'nuclearity' (2012).

4.6 Nuclearity

If we apply the idea of nuclearity to the post-Chernobyl landscape – especially its bordering process - it can be revealing, showing that *nuclear space* is produced through practice that is inseparable from other forces beyond technical risk assessment and scientific measurement. Nuclear spaces such as Chernobyl may have all the trappings of a clinical geographic division between dirty and clean space, but are in fact always a spatial compromise that may have more to do with local governance decisions than the amount of radiation in the soil, food, and bodies.

For geographers, this idea of nuclearity can be useful in relation to space. What counts as nuclear thing varies from one place to another, and so too does the way nuclearity is interpreted affect how post-disaster spaces such as Chernobyl are understood, conceived, and controlled. It also highlights how 'nuclear space' is not something that just appears on the landscape, but is something that must be actively *constructed*. This construction of nuclear space takes effort, and the actors and power structures involved are not divorced from social and political influences (Hecht 2014). Producing nuclear space is not simply a clinical matter of measuring radiation in the landscape. The geographic placement of official nuclear space is constructed through a spatialized nuclearity; a filtering of radiation through a techno-political process. As such the border between nuclear and non-nuclear (things, spaces, bodies) is not a fixed categorization dictated only through science. This can be demonstrated geographically by the placement of Chernobyl's nuclear Exclusion Zone.

4.7 *Making places nuclear: geographic nuclearity*

Despite the multitude of measurements, and self-proclaimed 'comprehensiveness', the 'passportization' of each settlement after Chernobyl did not always match the technocratic risk parameters set out in the law (Figure 4.5). In a geographic expression of nuclearity, the exact contours of the Exclusion Zone, for example, were often dictated just as much through local politics and practicalities as through the technical risk assessments of soil, food, and bodies. 'Natural' boundaries

in the landscape, such as the Kyiv Sea[81] to the east of the Zone provided a convenient cut-off point, despite radiation on the other side of the reservoir being just as polluting as some areas inside the Zone (see Figure 4.3). Likewise, from a governance perspective it was expedient to place the Exclusion Zone in only one regional district – Kyivska, which is why the border between Kyivska and Zhytomyrska Oblasts also serves as the Exclusion Zone's western extremity. Here, the official nuclear spaces of the Exclusion Zone were designed more through political expediency than techno-scientific measurement.

An example of the malleable nuclearity of Chernobyl's official geography is the town of Poliske. Here, local practicalities usurped techno-scientific risk assessment, and the spatial definition of 'nuclear' was altered due to wider political and practical considerations. The settlement is positioned 55km southwest of the reactor, which was at the time of the disaster downwind of one of the main plumes of radiation. By the standards of the law, the town should have been evacuated as soon as possible after the disaster, but its 11,300 inhabitants were not told to leave until after 1991 (Tykhyy 2006). Scientists involved in the placement of the Exclusion Zone maintained that 'a town with a developed infrastructure was badly needed to serve various logistical purposes – laundry etc. Thus it was decided to leave it outside the zone' (ibid, 224). The technical radiation risk criteria were moved, literally, to accommodate the need for an operations base near to the reactor. The nuclear border was changed.

Other non-technical practicalities such as the position of collective farms [*Kolkhozniki*] also impacted the geographic placement of the Exclusion Zone. Collective farms held a key administrative, social, and governance function in rural regions throughout the Soviet Union, with some arguing that it is 'hard to overestimate the role that socialized farms played in developing and maintaining the rural social infrastructure' (Zvi et al 2004, 27). The same was true for the agricultural landscape near Chernobyl, and as such, officials who were planning the extent of the Exclusion Zone were reluctant to separate villages that were administered by the same collective farm. Kolkhozniki held too strong a

[81] Leaving aside debates on the concept of 'nature', 'The Kyiv Sea' or 'Kyiv reservoir' is in fact not technically natural feature at all, but rather a 110km long artificial lake flooded between 1964-1966 to provide hydroelectric power to Kyiv (Hadderingh et al 1997). Seen north of Kyiv in **Figure 19**.

social and political importance to not influence the spatial nuclearity of the Exclusion Zone's geography. Around the potential borders of the Zone, collective farms were either evacuated in their entirety[82], or special measures were taken in order to ensure that all the villages from each collective farm-unit were spared the fate of abandonment. A participant in Frozinivka village attributed the reason that his settlement was not evacuated to its connection to the other villages that comprised the collective farm, where all three remained outside of the Exclusion Zone:

> '*No, we were not evacuated. Ditatki, Zorin and Frozinivka were all part of one collective farm so we were not evacuated*' (Elderly man, Frozinivka village)

A more revealing example, and a place where several in-depth interviews were conducted, is the small village of Hubyn. Hubyn is situated just *outside* the southern border of the Exclusion Zone, the fence skirts round the far edge of the graveyard and several household plots back directly onto the border. Having first been notified that they would be evacuated due to the high level of radiation in their village, the residents - around 200 at the time - were told to pack some clothes and wait for immediate transfer to safer territory elsewhere in the USSR. But, as one resident of Hubyn described:

> '*We were told to gather our belongings and so we gathered our things, but then the head of the collective farm came to us and said 'Forget it - carry on living and working here, its fine*' (Baba Maria, born 1941, Hubyn village)

The head of the collective farm, which was based in the larger village of Hornosteipel, some three and a half kilometres further from the reactor, had persuaded the officials in charge that Hornosteipel and Hubyn could be amalgamated under one 'mayorship'. Hornosteipel was firmly in the category of Zone three, with less radiation than Hubyn, and therefore Hubyn would not have to be evacuated. People in Hubyn described how their small village '*was not even on the map*' before the Zone planners arrived, instead being labelled as 'New Medvyn', referring to another village further southeast. This cartographic confusion, combined with a desire to keep collective farms [*kolkhozy*] together, meant that Hubyn village would escape being placed in the Exclusion Zone. Clearly the

[82] In 1986, fourteen collective farms and two State farms were abandoned due to the emplacement of the Exclusion Zone (UNDP 2006, 109)

geographic definition of nuclear and non-nuclear space was altered to accommodate factors beyond technical risk understandings. Hubyn was eventually given the 'passport' category of Zone 3 to match that of Hornosteipel, and today, the border fence takes a tactical meander around the village, which was so nearly abandoned (see Figure 4.6). As another resident of Hubyn explained:

> *'During 1986 our village was about to be evacuated. But, because it was connected to the collective farm, and Hornosteipel was not evacuated - that's why they left us. But actually our village is inside the Zone.'* (Natalia, Hubyn village)

When Natalia refers to her village as '*actually inside the Zone*' she is referring to the original technical requirements of the Exclusion Zone, not the legal reality set out in space today. The process of being on the cusp of evacuation and then being told that actually '*its fine*' blurs the boundary between clean and unclean space, and, as will be expanded upon later - is used as a justification for risky practices such as illegally entering the Exclusion Zone itself. People who live on the edge of the Zone know how close they came to being evacuated, and therefore interpret the legal-spatial classification of territory much more loosely than those who live further away. Legally speaking Hubyn village narrowly escaped being labelled as a settlement set for abandonment during the 'comprehensive categorization of settlements' (Ministry of Emergencies of Ukraine 2011b, 42).

Figure 23

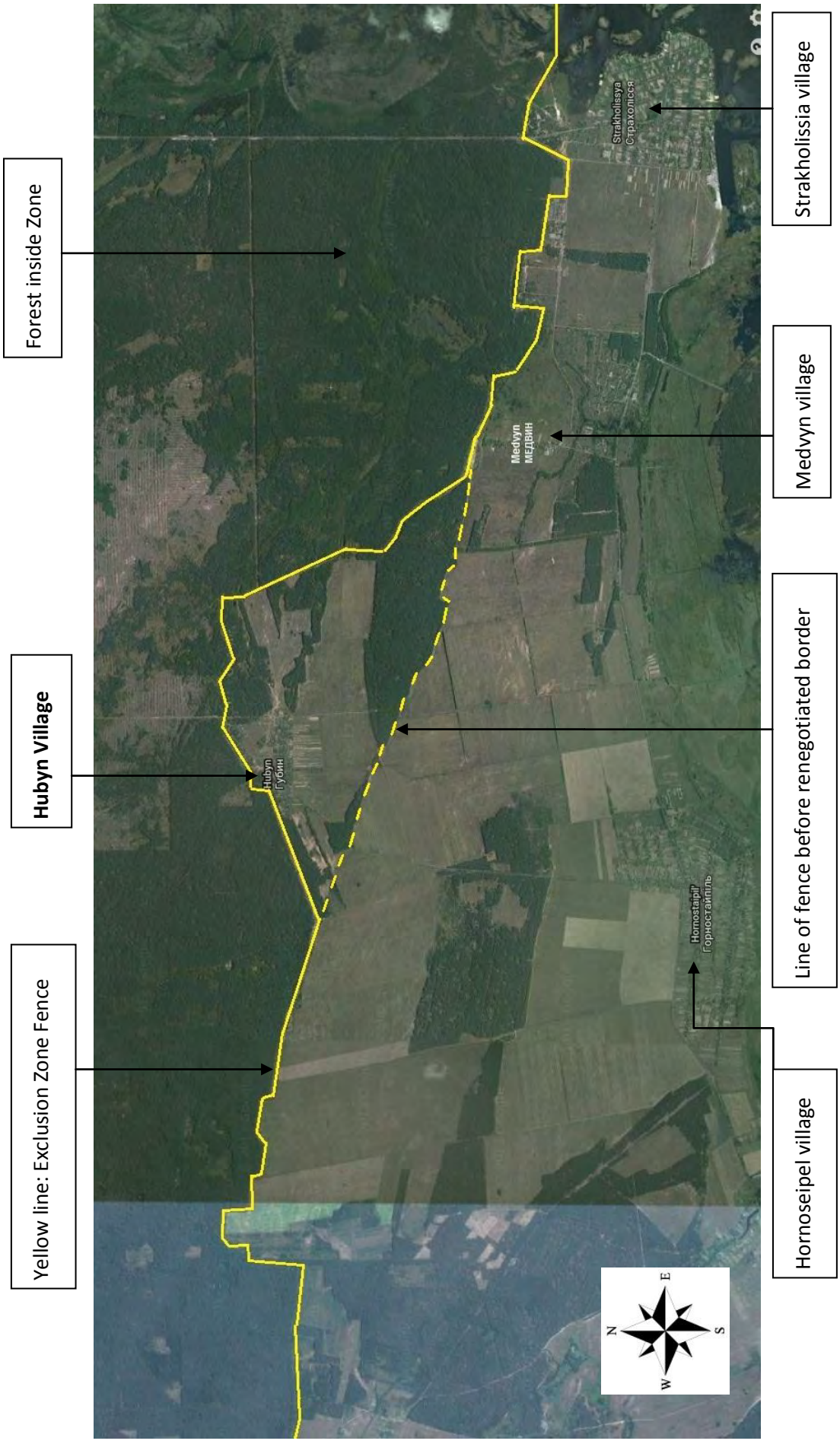


Figure 23: *Image of a (15 x 7.5 km) section of research area along the southern border of the Exclusion Zone. The location of the Exclusion Zone fence is shown by the yellow line. Source: Google Earth.*

4.8 *Nuclearity Revisited*

So nuclearity can be spatialised, influencing the geographic borders of the official spaces of Chernobyl. As Gabrielle Hecht discusses, 'being nuclear' is never simply a technical matter, but rather a technopolitical process (Hecht 2014, 94). She highlights that although radiation is a physical entity that occurs irrespective of how it is politicised and detected, 'nuclearity' is the way that radiation is filtered through political, scientific, and cultural lenses – and thus 'nuclearity is not the same for everyone...[or]...everywhere', instead it changes over space and time (ibid, 95). From her work in Africa, Hecht's discussion of how radiation hazards can be 'rendered invisible' through deliberate governance decisions is pertinent (ibid, 94). At first reading, the radiation present in the settlements of Poliske and Hubyn for example were rendered invisible and 'unknowable' by the decision to place the settlements outside of the Exclusion Zone. Only after 1991, when the town of Poliske was eventually evacuated and placed within the Exclusion Zone's legal and territorial boundary was radiation made 'tangible'.

By extension, one could say that Hubyn's continual placement *outside* of the Zone means radiation has remained 'unknowable' here. Yet this idea of radiation being 'rendered invisible' is tarnished by the fact that people who continue to live in Hubyn today are aware of the negotiated process involved in deciding the fate of their village. They know that according to the law they should be '*actually…inside the Zone*' and are aware of the local political decision to amalgamate their village with other villages in order to escape evacuation. In other words they are aware of nuclearity. Unlike Hecht's example of uranium mining in colonial Africa, the nuclearity of the Chernobyl landscape did not take place entirely in secret. The way that collective farms were involved, as key sites of social and political governance, meant that although the placement of the Zone was not remotely participatory – the *Kolkhozniki* meetings and inevitable gossip, meant people became aware that the border placement was open to negotiation. The knowledge that the residents of Hubyn had come so close to being evacuated - even packing bags - before being told that actually '*its fine'*, blurs the certainties that the fence promises to people who live further away. Radiation here was not so much

'rendered invisible', as left open to individual interpretation, with a continued presence in the local imagination.

Kuchinskaya gives the example of how the 'border' between nuclear and non-nuclear can be altered, using the example of Fukushima. After the accident at Fukushima-Daiichi, Japanese authorities increased the radiation exposure limit for individuals from 1 mSv/year to 20, which – when this became known - led to public outcry and the tearful resignation of the top radiation measurement expert and government 'special advisor', Professor Toshiso Kosako (Kuchinskaya 2013). Moving the goal posts in this way demonstrates the power of authorities to decide what *is* and what *is not* nuclear, irrespective of the ontological existence (or not) of invisible radiation. The amount of radiation present in the environment had not changed, merely the way that the hazard was defined. Since hazards such as the risk from radiation are often only made visible through the way they are defined by the State, it means people are susceptible to a double-blindness – once from the properties of invisible radiation and once more from post-nuclear governance. The geographic placement of Chernobyl's Exclusion Zone that varied over space in north-central Ukraine, and the changing of the acceptable exposure limit after Fukushima both demonstrate how the definition of 'nuclear' is a flexible, unbounded and negotiated term.

As Hecht describes in relation to uranium mines – this time in South Africa - 'radiation matters, but its presence is not enough to turn mines into nuclear workplaces' (2014, 95). So too for the post-Chernobyl landscape of north-central Ukraine, the presence of radiation is not enough to make space 'nuclear'. To do this one must involve technical experts, scientific equipment, cartographers, laws and the State, and even then, as we have seen with the previous examples of Hubyn and Poliske, the technical perspective may not always be adhered to – it is a compromise or vector between political, social, and cultural forces, as well as technical perspectives. In north-central Ukraine the official geography of Chernobyl's 'nuclear space' is a negotiated ontology, established through scientific, political and cultural filters; mapped-out through *nuclearity*. This breaks somewhat from the usual characterization of environmental risks as a binary between technical and lay perspectives – even if they are encouraged to work together (Wynne 1996). Instead it places technical risk understandings as

but one of a myriad of factors that are necessary to produce and perform *formal* nuclear space. This official nuclear geography also does not account for the informal ways in which people interact, perceive and interpret nuclear space. This will be expanded upon in the following chapter.

4.9 Nuclear Framework

These formal spaces, which are created not only though a technical understanding of radiation but also through other processes of nuclearity, become the official framework around which people in everyday life are forced to live and react. The state's strategic attempt to simplify reality and create a 'proper place to each particular element' (de Certeau 1984, 38) by dividing space between 'clean' and 'dirty' condenses a messy and unreadable post-Chernobyl landscape into spaces more easily controlled. In this way it echoes the conceptualization of the 'strategy' of the powerful where:

> 'the division of space makes possible a panoptic practice proceeding from a place whence the eye can transform foreign forces into objects that can be observed and measured, and thus control and 'include' them within its scope of vision' (de Certeau 1984, 36).

By isolating space into its composite parts, those in power are able to increase control. Dividing the post-Chernobyl landscape into legally bounded areas (emplaced through nuclearity) is one example of de Certeau's strategy in action. The link that de Certeau makes between strategy and sight is important in relation to the invisible spaces of a post-atomic landscape. For the proponent of the strategy, such as those involved in post-Chernobyl governance, '[t]o be able to see is also to be able to predict, to run ahead of time by reading space'; to make sense of invisible radiation with its pan-generational half-lives. Though aiming for all-seeing practice, what the proponent of the strategy 'reads' in space is only based upon their official grammar. The unofficial slang and whispered mutterings of everyday life remain lost in translation - beyond earshot.

Indeed de Certeau himself problematized this apparent panopticism, suggesting that the strategy of the powerful also inadvertently creates spaces that are beyond its field of view; cracks and fissures in the 'framework' that can be exploited by those who lack power. Indeed James Scott argues that 'certain forms of knowledge and control require a narrowing of vision' (1998, 11), therefore this mapping,

testing and division of post-Chernobyl territory through processes of nuclearity is arguably part of this tunnel vision. Radiation can be visualised by the state, but the sphere of everyday life remains off-limits. Indeed practices in everyday life often exist beyond formal conceptualizations of space – such as the official Nuclear spaces formed through strategic nuclearity. This creates another 'layer', or informal reading of the landscape: 'articulating a second, poetic geography on top of the geography of the literal [and] permitted meaning' (de Certeau 1984, 105).

While it has been demonstrated that those with strategic power are able to move the border of formal nuclear space through nuclearity, this thesis will also show that nuclear borders can be transcended and subverted by informal actions, and non-formal understandings of radiation. This will be discussed later in the thesis where informality and border transgression will be considered in detail (see Chapter 5).

4.10 *Why the official geography of Chernobyl matters*

But why should these aforementioned subtle changes to the contours of the Exclusion Zone really matter? These are, after all, just small adjustments to the map; tiny inflections on Chernobyl's sprawling cartographic landscape. I would argue it matters greatly, and for two primary reasons both centred on the lived experience of Chernobyl.

Firstly, though the thesis will suggest that radiation is often understood through an embodied and local practice – it must not be overlooked that this local perspective also relies (to some degree) on the official placement, enforcement and 'Zoning' of Chernobyl in order to make sense of radiation risk. Indeed, in the context of a radiated landscape, 'sense' is something that must be actively made – through signposting the landscape with barriers, warnings and legal structures. The location of the Exclusion Zone is a key visual reminder to people who live nearby of the presence (or absence) of radiation. This may be resisted, ignored, or have the opposite effect, but it is still a clear physical and symbolic marker on the landscape that indicates how the ongoing *process* of Chernobyl should be *formally* understood.

The location of the Exclusion Zone border, every twist and turn – classifies and locates space into not just legal categories, but gives the illusion or performance of a 'real' boundary between clean and unclean space, despite the inherent liminalities of a landscape polluted by invisible radiation. The official performance of the Exclusion Zone is in this sense deceiving. The barbed wire, border guards and legal doctrines give the impression of a spatial statement of radiological-*fact*, rather than the less certain geographic expression of a negotiated nuclearity. The Zone(s) provides the 'grid' onto which everyday life is performed and resisted (de Certeau 1984). People's relationship with this border and the implications this has on their risk understandings can be seen as part of the 'bordering process' (Newman 2006, 145) of Chernobyl. This rejects the view of a border as a purely fixed or static entity but rather it frames it as a dynamic and performed practice.

Secondly, the exact (re)positioning of the Zone may seem like mere changes on a map, but the lived experience of being on one side of the fence or the other cannot be overestimated. Being evacuated, or becoming an 'environmental refugee' (Brown 2012, 208) had a huge anthropological consequence for hundreds of thousands of people - not only for those who were forced to relocate[83]. Across the length of the border area, from Strakholissia in the south-west, to the border of Belarus (and beyond), families were split, communities were severed and social networks depleted. The uncertainty of not knowing when or even *if* your village would be evacuated was incredibly stressful. The prospect of being evacuated meant the complete disruption of all certainties in everyday life. This is discussed further in Chapter 6.

Zoning, mapping, and the creation of official nuclear space puts distance between those with power and those on the ground. It is a distance that is both necessary, in order to simplify space and distil its complexities into controllable parts (clean/dirty, legal/illegal, excluded/included); but also reductive, as the cartographer is forced to 'disentangle himself from the murky intertwining daily behaviours' (de Certeau 1984, 93). Following Lefebvre and de Certeau, I argue that it is through these interwoven and everyday actions that we will best understand the on-going process of Chernobyl. For us to move

[83] In total over 350,000 people would be displaced by Chernobyl which is more than the entire population of Iceland. (Davies 2013).

away from a distanced view of Chernobyl, we must speak to people who were and are actually there. Through viewing these narratives and experiences we will gain a better sense of how risk understandings are formed today and how people interact with and understand the Chernobyl landscape.

4. 11 Conclusion

In his book '*The Practice of Everyday Life'* (1984) de Certeau provides us with the analogy of standing atop a skyscraper, staring down upon the metropolis laid out below. From this great height he suggests that the city appears orderly, uniformly designed and even simple; with the elevated voyeur flying above the city like Icarus, able to 'ignore the devices of Daedalus in mobile and endless labyrinths far below' (ibid, 92). This lofty vantage point demands the viewer extricate himself from the chaos of everyday life beneath. Yet like Icarus, this god-like altitude has its drawbacks; the detached perspective giving little insight into how people actually *use* the city - how they navigate the complex, disordered and messy informal spaces of the streets and alleyways beneath: the labyrinthine intricacies of everyday life.

The landscape of Chernobyl is not a city – they were abandoned long ago – yet the complexities of this blemished rural space remain the same. The city, like the formal spaces of Chernobyl, did not just appear out of the landscape on its own. The emplacement of the grid-like structures of the metropolis that de Certeau describes from his high vantage point took work – and so too did the Zoning of Chernobyl. All nuclear spaces must be actively produced. The official spaces of Chernobyl were constructed (legally, physically, cartographically) through spatial processes of nuclearity - created through a myriad of convergent factors, producing geographic 'certainties' in an ambiguous landscape. Mapped out through the confluence of social, political *and* scientific pressures - radiation was written and unwritten onto the landscape, creating an official 'grammar' upon which everyday life is forced to muddle through; constantly reproduced and performed sites of exclusion and inclusion. It is important to know how these formal spaces of Chernobyl have been constructed and emplaced, in order to understand how this landscape is interpreted and understood by those who live with it.

We have discussed, for example, how the zoning of Chernobyl's nuclear landscape is first and foremost an effort at control, to 'contain' both contaminated space and also the uncertainties that surround the disaster. This has been framed in terms of de Certeau's idea of 'the strategy' of the powerful (1984). Nuclear places become bounded and labelled, wrapped in barbed wire or legal guidelines; a spatial-othering that cleanses the rest of Ukraine by (dis)association. The Zone was made exceptional precisely to make the disaster as a whole appear more mundane. By controlling space, movement, and people – so too is the risk from Chernobyl also controlled, fixed with the apparent certainties of place. Bodies too become wrapped in bounded categories of Chernobyl's official geography, with the illusory protection of annual exposure limits and (unmet) promises of relocation and compensation. The borders are however, open to negotiation through nuclearity.

If we ended our analysis at this stage – at the point of an 'official' geography of Chernobyl, with details of its formal Zones, then we are left standing on top of de Certeau's tower – not gazing down upon a city but staring out across a planned post-atomic landscape. The distant villagers planting potatoes or gathering mushrooms in the dark forests would be lost through the haze, but the 'zones of voluntary relocation' and 'increased radiological monitoring' would be perfectly clear, as would the neat boundary of the Exclusion Zone fence; we would perhaps think nothing of the unseen behaviours lurking in the shadows just beyond our point of view. From this vantage we face a panorama of distilled and ordered territory, with a 'proper place to each particular element' (de Certeau 1984, 38) – 'nuclear' and 'non-nuclear' space laid out for us to see. The formal grammar of Chernobyl, like the grid of the city, would remain an unquestioned certainty, simplifying space and casting the ambiguities of the Chernobyl landscape behind defined zones and barbed wire.

It is not just the intricate complexities of everyday life that remain out of site from this dethatched perspective. From here the nuclearity (Hecht 2014) involved in producing these formal spaces would remain hidden. We would not know that the border of the Exclusion Zone – like many borders, and all nuclear boundaries – is open to negotiation and contestation. We would be unaware that the position of the fence, which stretches out below us, fluctuated locally due to the location of socially and politically important *Kolkhozniki*, or as in the case of Poliske, the need for an administration base near

the epicentre of the accident. The certainties of the Exclusion Zone border, dividing the landscape between safe and unsafe space, would hide just as much as it threatens to reveal.

De Certeau describes how - from an elevated and detached perspective - 'the everyday has a certain strangeness that does not surface' (de Certeau 1985, 93). Indeed, if we stop our analysis at the official level, then this 'strangeness' or informality – which I believe is so vital in understanding the spaces of Chernobyl – will remain hidden, and it will not be clear how people interact with this seemingly formalised nuclear landscape. How this official strategic framework is interpreted in everyday life - often 'tactically' - will become increasingly important as we begin to discuss in greater detail people's risk understandings, and the informal ways in which space is used. As the following chapters will reveal, although those with 'strategic' power are able to *move* the 'goal posts' in terms of what-is and what-is-not 'nuclear', i.e bending the official border of formal nuclear space through nuclearity, so too are individuals able to subvert and transcend nuclear borders through informal actions, and unofficial understandings of radiation. In the construction of nuclear space, those with power may be able to move the goal posts, but the players may not always be obeying the rules.

Chapter 5: ***Informally negotiating nuclear space, bare life, and de facto abandonment: from de Certeau to Agamben***

5.1 Introduction[84]

> *'...so I was at the checkpoint where they check the cars for everything that is prohibited from leaving the Zone, and I was caught by one of the guards. He said "What is that in your bag?" And I said "Mushrooms", and the guard said "You know that mushrooms are especially prohibited from leaving the zone?" And I said "Yes I know, but they are not for me!" [laughter] And the militia asked "Well who are they for?" and I said "They are for my mother in law" [laughter] And the militia said "OK, have a nice trip!"*
>
> - *(Viktor, late-forties, former Chernobyl liquidator)*

Borders have been a part of Viktor's life for most of his adulthood. Until the 'anthropological shock' (Beck 1987) of the 1986 Chernobyl nuclear disaster, he was doing national service as a border guard on the western edge of the Soviet Union. He showed me photographs of his former self; uniformed, proud, and young. They were stuck carefully into a velvet-clad scrap book of a previous life [see **Figure 24**]. He patrolled the barbed wire fence that separated the U.S.S.R from the Socialist Republic of Romania, miles away from his home near a power station in northern Ukraine, where we now sat: '*After Chernobyl it all changed*' he said. He shows me a pile of 'Liquidator' passes which he held until 2008, each one signed and stamped with a nuclear warning symbol next to a photograph of his face. A different, more serious man stared back, his face the embodiment of life on the margins. These passes let him enter the 30 km 'Zone of Alienation' which surrounds the exploded reactor, and contains some of the highest levels of nuclear contamination on earth. A contamination that is a constant threat, but remains completely invisible.

[84] Sections of this chapter are published in Davies (2015) and Davies & Polese (2015)

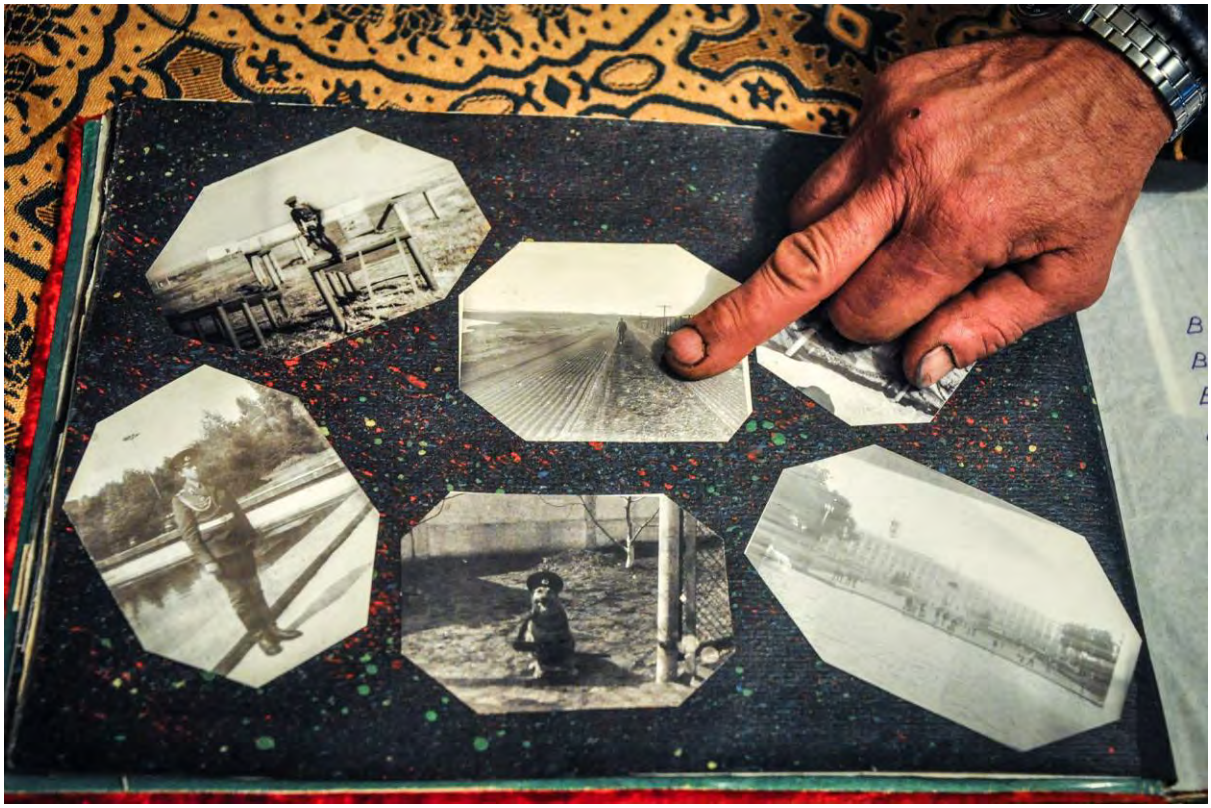


Figure 24: *Victor shows me photographs stuck into his velvet clad scrap book. The name of the scrap reads 'Memories of service in the KGB'.*

As this chapter will reveal, the ubiquitous yet officially unseen presence of informal activity also dwells within the 'floating mists' (Lefebvre 200, 98; Round et al 2008a, 172) of the Chernobyl landscape, not threatening the marginalised but helping them negotiate everyday life. It is through analysing these informal activities that we can see the unofficial side of Chernobyl emerge, with 'tactical' (de Certeau 1984) resistance to the dominant spatial power structures of nuclear space. Furthermore these informal activities are key ways in which marginalised post-Chernobyl citizens - who have arguably been stripped to 'bare life' (Agamben 1998) - are able to assert agency over the spaces they have been excluded from. This diverges from previous uses of Agamben by geographers, who maintain that those who are reduced to 'homo sacer' are denied powers of resistance or agency (Pratt 2005), or can only resist bare life in overtly political ways (Ramadan 2013), such as flag waving, political graffiti or 'lip sewing' (Edkins & Pin-Fat 2005; Darling 2009; Owens 2009; Selmeczi 2009). This chapter departs from this framing of bare life. It argues that everyday informal

practices – such as those witnessed around Chernobyl - when seen through a de Certeau lens of 'tactics and strategies' (de Certeau 1984) constitute ways of asserting agency and resisting bare life, which is often enacted spatially. This approach to resistance is clearly indebted to Scott's (1990) work on everyday forms of resistance between the powerful and the powerless.

This chapter will frame Chernobyl as a 'space of exception' (Agamben 2005) and those affected by Chernobyl as post-atomic 'bare life' (ibid 1998). Using the example of illegal scrap metal extraction from the Exclusion Zone, the chapter will reveal how individuals are able to subvert their subjugated and vulnerable situation through informal economic activities that surpass (and ignore) formal governance and understandings of nuclear space. These tactical forms of resistance will be discussed in the context of de facto state abandonment, where the Ukrainian state is unable or unwilling to protect Chernobyl citizens by including them in any meaningful or practical way within the state welfare system.

The previous chapter discussed how the official nuclear spaces of Chernobyl were negotiated through processes of nuclearity (Hecht 2014), with those with power able to redefine and move the borders of what is - and isn't - considered 'nuclear'. This spatialisation was framed in terms of de Certeau's strategies of control (1984), where places, bodies and categories are organized and subdivided so as to constrict and control the nuclear risks (and unknowns) of Chernobyl. The Zoning, mapping, and division of space created an official nuclear geography that can be seen as a formal 'grid' or structure upon which everyday life must exist.[85]

I have chosen not to frame the formal spaces of Chernobyl in terms of a Foucauldian institution (see Foucault 1975), in part because this leaves less room for unpicking the everyday resistance to power structures. Critics of Foucault have argued that his focus on the totalizing power of institutions and disciplinary society means 'he ultimately paralyses, rather than promotes, resistance' (Pickett 1996,

[85] The enforcement of these official spaces, through border guards, fences and signs on the landscape simultaneously allows radiation to be *performed into existence*.

445; see also Friske 1993; Williams & Bendelow 1999; Cupples 2008; Reeves 2008)[86]. De Certeau – in a thinly veiled critique of Foucault's preoccupation with 'discipline' and institutions – argues that:

> 'If it is true that the grid of discipline is everywhere becoming clearer and more extensive, it is all the more urgent to discover how an entire society resists being reduced to it' *(1984,xiv)*

In other words, though de Certeau offers up strategic spaces as places of the powerful, he leaves room for – in fact insists upon – there being spaces for resistance to this authority. For de Certeau (unlike Agamben and to a lesser extent Foucault) it is *resistance* that is at the centre of his conceptualization of power. Towards the end of the previous chapter, the notion that there might be other, unofficial ways of understanding and interacting with the strategic nuclear spaces of Chernobyl was highlighted. This will be expanded upon here.

This chapter will develop the idea of 'tactics of resistance' (de Certeau 1984) as a means of interacting with and subverting the official rules and understandings of nuclear space. As discussed in the literature review, the thesis builds upon scholarship by a number of geographers who have used the theoretical framework of de Certeau's (1984) 'strategies' and 'tactics' to better understand how those without power are able to resist, subvert and challenge dominant power structures through practices in/of everyday life (Hubbard & Sanders 2003; Secor 2004; Cupples 2008; Tutt 2008; McFarlane 2011; Lin 2013; Gill et al 2014; for post-socialist examples see Round et al 2010 and Sasunkevich 2013). In this chapter we will discuss the work of de Certeau in conjunction with the ideas of Giorgio Agamben.

To explore this further, the chapter will first position the Chernobyl landscape as a 'space of exception' (Agamben 2005), with its affected population being outcast as vulnerable *homo sacer*[87].

[86] Of course, Foucault does discuss the idea of resistance in his large canon of work. For example he says 'Where there is power there is resistance' (1978. 95-96). However, he goes on to say that 'consequentially, this resistance is never in a position of exteriority to power' (ibid), which therefore leaves little room to separate power from resistance and focus on it beyond the totalizing power structures of the state.

[87] Giorgio Agamben's notion of 'bare life' is germane when describing Ukrainian citizens whose bodies have been exposed to radiation without adequate state protection or compensation. Like the antiquarian figure of 'Homo Sacer' which inspired Agamben, these exposed and neglected populations have been denied legal

The chapter will argue that de Certeau's tactics of resistance are a key way in which the exposed and unprotected Chernobyl citizens are able to renegotiate their abandoned status of post-nuclear 'bare life' (Abamben 1998).

Making further cuts into the literature, the chapter will briefly discuss some problems with how previous geographers have used Agamben, arguing that we should move beyond narrow legal definitions of[88] 'being a citizen' or 'not being a citizen', to reveal how the lived experience of bare life and state abandonment exists *within* the official/normative political order, not necessarily outside of the political order – or within 'the camp'.

5.2 Re-theorizing Chernobyl and Informality

This chapter will read Agamben via a de Certeau lens, opening up spaces of exception to be places that can *empower* individuals who might otherwise be brushed off as impotent homo sacer (Constantinou 2008). It is the close proximity of the rules and regulations of exceptional spaces that create opportunities for resistance through tactical uses of space, such as cross-border exploitation, as seen with more conventional border arbitrage opportunities in Ukraine (see Cassidy 2011) and elsewhere (Doty 2011). Spaces of exception – most commonly conceived as variations on 'the camp'- such as prison camps (Gregory 2006), psychiatric hospitals (Reeve 2009), prisoner transport (Moran et al 2012), detention centres (Bailey 2009), refugee camps (Ramadan 2009;) and concentration camps (Agamben 2005) etc., are commonly framed as places that contain (or produce) individuals who have little capacity to defy their subjugated and excluded status. However a small but growing literature is suggesting that these places can also foster resistance (Ziarek 2008; Doty 2011; Ramadan 2013; Antonsich 2013; de Dardel 2013). This chapter builds upon this, arguing that spaces of exception – while remaining 'spaces where people can be controlled...or even killed with impunity' (Sparke 2007, 339) - are also fertile grounds for resistance. It is the very noticeable presence of the sovereign within these boundaries, rules and politics of places of exception that makes resistance to

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security by the state, producing irradiated bodies that "cannot be sacrificed yet may, nevertheless, be killed" (Agamben 1998, 10)

[88] NOTE TO SELF ...beyond 'exclusion/inclusion' in purely legalistic terms, as it is quite evident that the gao between de jure and de facto governance in everyday life makes this reading of power submissive to the authority of the sovereign.

them (however small) not only possible – but inevitable. More broadly, I follow previous geographers of Ukraine who argue that spaces of informal practice are 'simultaneously sites of exploitation and resistance' (Round et al 2008a, 171), and show that this is especially the case in spaces of exception such as Chernobyl, where unequal power relations are so starkly laid bare.

Chernobyl exemplifies a 'state of exception' (Agamben 2005) - a space where the normal rules of governance, state protection, and citizenship do not apply. Here, like in other modern spaces of exception suggested by Giorgio Agamben, such as Guantanamo Bay or Nazi concentration camps, certain people are excluded from the normal protections of the law, and allowed a 'death without consequences' (Doty 2011, 610). This thesis follows calls from human geographers to 'bring Agamben out from the battlefield' (Laurie 2014) and we can apply his framework to the nuclear landscape of Chernobyl. With Chernobyl, the geographic emplacement of nuclear 'Exclusion Zones' and governance from Ukraine's 'Ministry of Emergencies' ensures that a permanent state of exception persists. As such, those living in Chernobyl-affected spaces can be viewed as '*homo sacer'* (Agamben 1998) - their individual biologies no longer the responsibility of the state; the de jure inclusion of Chernobyl citizens within a strategic spatial and legal framework hides the lived reality of effective state-abandonment. To live inside contaminated territory is therefore to live outside the de facto protection of the law. As such, Chernobyl can be considered a perfect case study for ethnography at the margins of society. It is here that the tension between citizen and the state is most visible (Polese 2011).

In the Chernobyl region the excluded and abandoned have created a set of informal mechanisms independent from the state. I suggest that this informality – both in terms of informal economic practice but also informal understandings of nuclear space – are a key way in which individuals are able to enact agency and circumvent their status of post-atomic homo sacer.

Although the provision of a small state pension paid out each month, tiny food subsidies, or the permission to live in a given place might indicate that the state has 'not forgotten' these people, the amount of benefits received and the way this compares to the rest of the country, seem to point to the

fact that state support is more nominal than real, showing little or no difference from those who receive nothing from the state. By focussing on the lived experience of Chernobyl food subsidies and relocation support later in this chapter, it is clear that the post-Chernobyl Ukrainian state offers only a 'Potemkin village'[89] of welfare support: a complex web of de jure entitlements but a lived reality of de facto state abandonment.

5.2.1 *Stealthy Violence of abandonment*

The informal practices around the Chernobyl Exclusion Zone detailed below take place against a backdrop of state violence and neglect. As described in the literature review, recent scholarship argues that the failure to adequately compensate and protect citizens can be framed as a form of *violence* (Li 2009; Gilbert & Ponder 2013), especially in situations of forced displacement (Shaw 2013). This is not the physical violence of genocide or 'thanatopolitics' discussed by Foucault (2003), but rather a 'stealthy violence' (Li 2009, 67) of abandonment, that casts Chernobyl citizens outside the actual protection of the state, and forces them to rely on informal actions and understandings of their nuclear landscape. It is within this context of abandonment that Chernobyl-affected citizens are compelled to employ unofficial understandings of space, and enact informal activities which bypass their bio-political status of bare life.

Adriana Petryna posits that after Chernobyl, 'scientific knowability collapsed' (2004, 250) and a new 'informal economy of diagnoses and entitlement' was created (ibid, 263). In a post-Chernobyl world where harmful radiation is invisible to the lay perspective, informal methods of overcoming this technological blindness emerged. Doctors were bribed not only for better healthcare, but to diagnose a more lucrative Chernobyl disability status. Sites of health care such as hospitals are well known spaces of informal exchange (Polese 2006 and 2008; Mæstad & Mwisongo 2011, Morris & Polese 2014), but Chernobyl presented a scenario where an individual's entire bio-political status could be altered through bribery and connections. New forms of 'biocitizenship' (Petryna 2002) surfaced after

[89] 'Potemkin Villages' were faux hamlets built by Grigory Potemkin in 1787 to impress Empress Catherine II as she travelled down the Dnieper River in (modern day) Ukraine towards Crimea. The phrase 'Potemkin Village' is used to describe a figurative or material construction designed to deceive people into thinking a situation is better than the reality. In this case we can see Chernobyl welfare as a 'Potemkin Village' because the support it offers (on paper/in the law) is in reality much better than actual protection it provides.

Chernobyl - where a higher disability status equalled more social benefits.[90] Suddenly an individual's damaged biology became useful bio-capital to be informally traded within the State's healthcare system. Individuals who had been (out)cast as post-nuclear 'bare life' (Agamben 1998) after Chernobyl, could now informally renegotiate their vulnerable economic and social position in this fledgling capitalist economy. This research expands upon these findings, to explore how informal activity has permeated the everyday lives of those who dwell in the shadow of the Chernobyl disaster. To situate these informal practices and understanding of Chernobyl within the wider context of de facto state abandonment, it is first necessary to discuss Chernobyl compensation and welfare.

5.3 Chernobyl Welfare

After Ukrainian independence in 1991, the baton of responsibility for Chernobyl passed from the USSR to Ukraine, making it one of the least welcome and most toxic inheritances of the Soviet collapse. At first, a newly independent Ukraine *increased* welfare payments and provisions as a method of publically and politically distancing itself from its former Soviet masters, but recent developments have seen a new approach to Chernobyl management. In 2010 the 'Ministry of Emergencies and Affairs of Population Protection from the Consequences of Chernobyl Catastrophe of Ukraine' was supplanted by the much pithier 'State Emergency Service'. The dropping of reference to 'Chernobyl' was more than semantic efficiency, but part of a wider move within Ukraine and beyond to rebrand the catastrophe from an ongoing process to a bounded and fixed event in late-Socialism. This move preceded the construction of the EU funded 'New Safe Confinement' (NSC); a huge structure that will envelop the infamous Sarcophagus of Lenin Reactor 4, and thereby attempt to physically and symbolically 'put a lid' on Chernobyl as an event. Or as one interviewee descried the NSC: 'They have to put some kind of hat on it'.

Chernobyl welfare, too, has been constantly threatened with overhaul by successive Kyiv regimes, often met with protests from Liquidators and other Chernobyl victims (*Chernobiltsi*). With estimates of 5-8% of Ukraine's annual state budget being dedicated to post-Chernobyl management (Oughton et

[90] One criticism of 'biological citizenship' (Petryna 2002) is that it puts too much importance on welfare provision that goes beyond the lived reality (and use) of that welfare; often Chernobyl-affected citizens survive despite (inadequate) welfare, not because of it.

al 2009; Stone 2012; Danzer & Danzer 2014), it is no wonder that Kyiv has made moves towards reframing the disaster from an open-ended question to a geographic and temporally closed-off 'certainty' in late-Soviet history. This shift in Chernobyl management follows calls for a reduction in Chernobyl spending from the World Bank that describe Chernobyl welfare as a 'dead weight' on Ukraine's floundering economy (Petryna 2011) – a political view that will doubtless gain further support following Ukraine's dire post-Euromaidan position and stringent IMF loan conditions (Davies 2014).

In Western Europe, as in other geographical regions, the 'ethics of austerity', enhanced by the recent economic crisis (Windebank & Whitworth 2014, 99), along with a wider desire to decrease public deficit, has encouraged a number of states to reduce the amount of money available for public services and enabled the private sector to penetrate previously state-monopolised aspects such as healthcare and education (Ó Beacháin et al 2012; Kovacs 2013; Tatar et al 2007).

Unlike some spheres of state protection in post-Soviet space, the sprawling and underfunded Chernobyl welfare system is not something that the private sector is willing to enter. Welfare has remained in a de jure sense entirely within the remit of the state, yet in a real sense informal activity has had to plug the gap that state welfare has left bare [**Figure 25**].

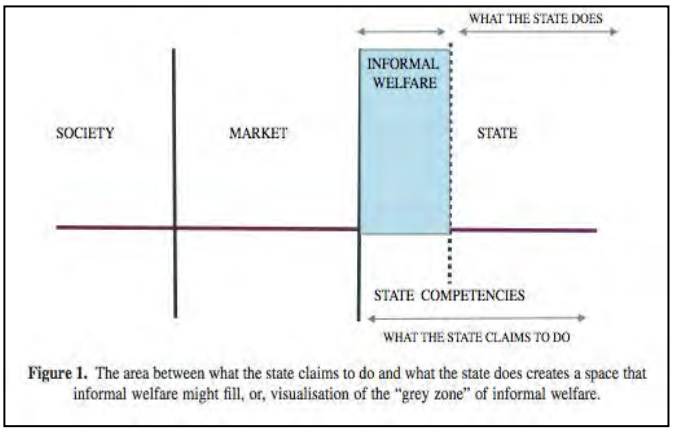


Figure 1. The area between what the state claims to do and what the state does creates a space that informal welfare might fill, or, visualisation of the "grey zone" of informal welfare.

Figure 25: *diagram showing how informal welfare substitutes limited state competencies (Polese et al 2014)*

As the state reduces the size of Chernobyl's welfare and benefit system, which already falls well short of protecting its exposed citizens, it will become even more necessary for informal mechanisms to step in where welfare fails, and circumvent the consequences of de facto state abandonment. As Chernobyl citizens face a 'double exposure' from the combination of nuclear pollution and failed governance (Davies 2013, 116), they increasingly rely upon informal mechanisms to subvert their position as post-nuclear bare life.

Despite the many unique characteristics of Chernobyl, it can be viewed as one representative element of a wider (and strained) state-society relationship that is evident across the rest of Ukraine, and other spheres of the former USSR (and beyond). For all the exceptionalism of Chernobyl's nuclear geography, its example reflects a far-reaching situation in post-socialism where individuals have to cope, often informally, with the retreat of the state and the widening gap between de jure welfare protection and the lived reality of the stealthy violence that is abandonment.

There are over 2.15 million people in Ukraine who live on territory officially designated as contaminated by Chernobyl (Ministry of Emergencies of Ukraine, 2011, 42) - around 4% of Ukraine's population (State Statistics Committee of Ukraine, 2004).[91] Those who live on this Chernobyl-affected land are entitled to monthly compensation payments designed to help people buy clean food, and thus mitigate the low-level risk of consuming produce grown in polluted soil. This was the most commonly encountered welfare provision encountered during this ethnography. The lived experience of this welfare system is quite different from its aim, as demonstrated in the following ethnographic vignette.

5.3.1 *The lived reality of Chernobyl welfare*

For Viktor and Klara who live on a smallholding in Hornostaipil village near the Chernobyl Exclusion Zone, informal economic activity is vital, supplementing their small formal income and the tiny welfare payments they receive as compensation for living with Chernobyl. They were married on the 19th of March 1986, just five weeks before the accident, and Victor started working as a liquidator in

[91] This statistic is from before the recent annexation of Crimea and the de facto loss of large parts of Donetsk and Luhansk oblasts.

the Zone soon after their wedding. In 2008 Viktor was sacked from his job as a driver in Chernobyl after an argument with his boss about not being paid for half a month's work. His wife Klara is now the main breadwinner and works two jobs as a school dinner lady and a carer for the elderly, getting paid around £145 per month. Their combined formal income gives them just enough to get by. On top of this, explains Klara, 'the government give us 2 Hryvnia and 10 Kopeks a month to buy clean food'. Many research participants complained about the extremely low level of Chernobyl food compensation, which varies from 1.6 Hryvnia in places with lower levels of radiation [Zone 4], to Klara and Viktor's case of 2.1 Hryvnia, for those who live with higher recorded radiation levels [Zone 3]. At the time of writing,[92] this is just 8 to 10 pence *per month*, such a small amount of money that one elderly interviewee sarcastically suggested that whoever came up with this amount had accidently 'placed a wrong decimal point'. Ukraine's Ministry for Emergencies states that citizens who live on territory affected by radiation should receive a:

> 'Monthly financial allowance to the citizens who suffered as a result of the Chernobyl catastrophe in connection with the limitation of consumption of locally produced food and compensation for reduced food provision' *(MEU 2011, 269).*

Yet a monthly financial allowance of only ten pence (or less) per month is a virtually useless amount in the Ukrainian context, where food prices are comparable to the UK (Round et al. 2010). As Klara rhetorically continued - 'What the hell can we get with that?' This paltry compensation reinforces the reality that people are living on contaminated territory, yet does nothing in the way of actually helping.

Although some welfare payments in Ukraine such as pensions or disability subsidies 'are adjusted periodically according to changes in the national average wage and inflation' (SSPTW 2012, 307), this has not been the case with Chernobyl food benefits, which are – as a Ukrainian diplomat explained during an interview - 'fixed at the same rate since the early 1990s'. As such, this dismally

[92] Ongoing events in Ukraine mean its economy is particularly precarious, and the exchange rate has changed dramatically since I first visited Ukraine in 2008.

low rate of compensation only serves to designate a territory as contaminated by nuclear pollution, yet does nothing to alleviate the problem. As one young woman explained:

> *'People go to the post-office and get the money. They have to go to the post-office and sign documents to say that they have received this money from the state, and people just laugh about it. This amount of money has been paid for 20 years, it was more in Soviet times.'*
>
> (Female, 31)

This inadequate welfare support reinforces the presence of contamination (reminding people each month when they collect their compensation)[93] yet makes no practical contribution to people's lives. The compensation itself makes the risk from nuclear radiation 'observable', and simultaneously makes people aware of how little protection the state is offering. This example of welfare failure in Ukraine can be seen as a form of 'stealthy violence' (Li 2009, 67), where individuals who live on land officially designated as risky, are exposed as bare life through inadequate compensation and de facto state-abandonment. They are nominally included in a welfare system, but in a practical manner they are excluded. Chernobyl governance produces lives that can end without consequence - not killed, but not protected from radiation either, effectively 'kept alive but in a state of injury' (Mbembé & Meintjes 2003). The idea of 'letting die' is also key here, as this is not the active violence of genocide, but rather the legally normalised passivity of leaving citizens exposed and unprotected to the very risks that the state has enshrined upon the landscape; killing is doing, whereas letting die is allowing (McMahan 1993).

This tension between the nominal (de jure) *inclusion* within a welfare system, and the de facto *exclusion* was suggested by one interviewee who believes the compensation is only designed to show the outside world that Chernobyl citizens have been 'protected':

[93] In more remote villages the compensation is delivered each month, to which one young mother commented: "*A postman comes and gives us 2gr but that is nothing. If we had to go and collect it we could not bother*".

> *'[The state] made an official document so that they can tell people abroad that they are doing something – but they give us 1 Hryvnia 60 Kopeks per month for clean products [8 pence], for which you can buy what? What can you buy with this? One third of a loaf of bread? [laughs] One small bag of English tea maybe?[laughs]'* (Female, 31)

This low compensation, to this interviewee, only serves the purpose of superficially including her and others affected by Chernobyl into a welfare system. Though the interviewee was laughing during our conversation about compensation, and had previously said 'people just laugh about it', we can invoke Macpherson (2008, 1080) here who suggests that laughter can 'betray a certain pessimism'. Indeed it was anger and frustration that marked out the many conversations I had with people who are living on Chernobyl-affected territory. 'We couldn't even buy bread with that' complained Viktor, in what became a sentiment repeated by many who live within this stigmatized 'landscape of threat' (Parkhill et al. 2013, 1). The comparison between the measly amount of geographically allocated compensation and the actual cost of everyday items such as a loaf of bread was a common theme. It was an invocation that further distanced the daily struggles of everyday life from a government that is perceived to be indifferent to their struggles. The following quotes, from respondents between the ages of 30 and 90 who live in zones three and four, are just a few examples of a very widely held opinion:

- *'Governments in other countries think we get a lot but our state does not give us much. Our government promises a lot but give us hardly anything. They give us 1.6 Hryvnia for healthy food, but actually we should be given 230 Hryvnia for clean products, it's not even enough for* ***bread****!'*

- *'What can you buy for that? You can't even buy a loaf of* ***bread****! Tell me what you can buy? Maybe some candies! You can only buy penny sweets!'*

- *'What can I buy with it? I can't even buy* ***matches****.'*

- *'It has never been enough money. People were going and talking to politicians but nothing has changed. You know our government, they fill their pockets, but what about us? Who cares that we are living here? Nobody! You have to gather the money for two months just to buy one loaf of* ***bread****.'*
- *'This 'one Hryvnia 60 Kopeks' is laughing at people – you can't even buy* ***bread****. But they won't do things the way we want, just the way they want.'*
- *'The sons of bitches are laughing at us when they give us such a small of compensation, when they have so much money.'*
- *'In three months we can buy one loaf of* ***bread****! It's just laughing at people.'*
- *'Everybody knows that the compensation of 2.1 Hryvnia is an absolute joke because everybody knows that this amount is not even enough for* ***bread****.'*
- *'Let them burn in hell, they are little devils giving us only this much money.'*
- *'Its nothing – just nothing! They don't give a fuck about us!'*

The repeated comparison of everyday food items, especially bread, to the welfare provision exposes just how inadequate this monthly allowance is, and how little it corresponds to the practical needs of everyday life. Most of the food that Viktor and Klara eat is grown themselves, in the very soil against which the compensation is supposed to mitigate. The miserly compensation actually compels people to do the thing that it sets out to prevent: people are forced to enact risky food practices and informal activities that welfare protection is supposed to protect them from. This will be discussed further in the following chapter where attitudes and understandings of radiation risk will be explored.



Figure 26: *Women buying loaves of bread in their local shop near the Chernobyl Exclusion Zone. Photograph taken from behind the counter by the shopkeeper, a research participant.*

5.3.2 *Exclusion through Inclusion*

A strict Agambian reading of this Chernobyl compensation would say that Chernobyl citizens are not bare life because they are 'included' within the state legal system. They are inside a state mechanism: documented, recorded and 'signed-on'. However, I argue that an individual can be technically within the legal framework of the state yet still be *homo sacer*: denied protection and allowed 'a death without consequence' (Agamben 1998). Whereas previous uses of Agamben have focused on the legal or overtly political (refugee rights, Guantanamo detainees etc) – this more nuanced reading of Agamben extends his idea of the exception; of simultaneously being inside and outside of sovereign protection.

In Chernobyl, individuals are *included* into the bio-political order but only so far as to placate and 'contain' the risks of nuclear disaster (which involves categorizing people and spaces but offering very little compensation). This 'includes' Chernobyl citizens without actually offering any tangible

support, and thus in reality *excludes* them from state protection[94], allowing them to be exposed as bare life and to face 'a stealthy violence that consigns large numbers of people to lead short and limited lives' (Li 2009,3). This suffering does not exist because people have been excluded *from* the law (cast outside), but because it has been normalised by the law.

Chernobyl citizens are effectively placed outside the protection of the society they inhabit, facing the prospect of being *excluded through inclusion*[95]. Agamben's conventional reading of sovereign power, following Schmitt suggests that in a state of exception, homo sacri are only 'included through exclusion' (Agamben 2005) i.e included only through their relationship to the state that has cast them aside. But in practice this can occur quite differently: in many cases where the trope of bare life is extremely apposite, groups are *included* (technically/legally) but are *excluded* in reality. The presence of an 'official document' does not extinguish the lived reality of bare life. Here we can begin to find problems with Agamben's focus on the *law* as the single praxis of power and sovereignty. It also opens up *homo sacer* to be a useful theoretical tool to interpret the lived experience of marginalization and abandonment that often exists *within* the official/normative political order.

The purely legal or overtly political framing of bare life is reductive and misses the many ways that marginalized citizens struggle through everyday life. To frame homo sacer in this way is also to relegate everyday life to a marginal or background role, disregarding the importance that many social theorist and geographers suggest it should hold (Lefebvre 1971; de Certeau 1984; Round 2006). Unofficial understandings of Chernobyl and informal economic activities are key ways in which individuals are able to resist and cope with the *de facto* abandonment that the law has normalised. This will be explored in the following section.

[94] This follows nicely from Li (2014) paper on not compensating 9/11 responders.

[95] The law does just enough to keep a semblance of protection, but then turns a blind eye to, or actively reinforces the de facto reality of subjecting homo sacri to the "stealthy violence" of abandonment.

5.4 A tapestry of informality



Figure 27: *An official document that permits entry of a vehicle into the Exclusion Zone. Viktor used passes like this enter the Zone while he worked as a liquidator until he got the sack in 2008.*

'If you have enough money we can remove the fucking reactor!' joked Victor as we sat at his home in Hornosteipel Village, 'Zone three'. From his house, located just a few kilometres from the nuclear border fence, you could see the distant tree-line that marks the start of the Exclusion Zone. On the table between us was a smorgasbord of Slavic hospitality, including *borsch* (soup), *pelmeni* (dumplings), *ogurtsy* (pickled cucumber) and slices of *salo* (pig fat) - a familiar and welcoming sight to anyone who has researched post-Soviet space, but here the food had (for this geographer) the added frisson of an imagined nuclear contamination. His wife Klara served us plates of food before going back to lean against the wooden doorframe by the pantry, where she sat most evenings, co-performing a gender divide that has been the bread and butter of much scholarship (Herod 1993; Manderson et al 2006; Tarrant 2013). Viktor was, of course, joking when he said that we could remove the reactor

from the Exclusion Zone if we paid a large enough bribe, but his sarcastic remark was revealing. He knows the Chernobyl landscape intimately, having lived near, and worked in the Zone for many years. He knows that the borders of the Zone can be overcome, that nothing is out of reach or beyond the right price, or friendly nod of a border guard. Ironic perhaps, that a generation ago, before Chernobyl and the collapse of the Soviet Union, he did his national service in the 'Border Guards of the USSR' (Пограничные войска СССР) [see **Figure 28**]. Now Viktor is an expert in subverting the local 'nuclear borders' that have been emplaced so near to his home, which happens to be South of the world's most infamous power station.



Figure 28: '*The borders of the USSR are sacred and inviolable' is written on the inside cover of Viktor's scrapbook.*

Looking around the kitchen he explained how '*every piece of wood in this house is from the Zone'*. He described how there is plenty of material in the Zone that can be salvaged if you know the right people; if you have the right connections. Numerous abandoned homes and collective farms lay beyond the distant conifer trees inside the 'illegal space' of the Zone. Explaining how he could

smuggle people past the checkpoints, he even offered: '*I have an old friend who works for the militia, maybe I could get us into the Zone?*' Where Viktor's social networks could not be used to negotiate this nuclear border, he described other informal methods (see **Figure 29** and **Figure 30**):

> *'I would buy six bottles of vodka and beer in Chernobyl, and then I would take it to the second border to bribe [the militia]. And then they asked for 5 litres of petrol. So I took this from the car and then we entered the inner zone.'*
>
> - (Viktor)

This mixture of social network and 'gift giving' to negotiate the various levels of border control, shows how informal activity is a complex and normalised part of everyday life. Each of the three checkpoints within the Zone; the outer 30km perimeter, the 10km inner checkpoint and the final guard post around the 'ghost city' of Pripyat near the reactor, required altering styles of informal subversion. This ranged from paying the border guards, giving them gifts, or simply being friends with them: a tapestry of informality as sophisticated as it was normalised. But this also had an affectual dimension, Viktor's descriptions of his encounters with the Zone were full of emotion – with obvious pride that he knew how to subvert the official nuclear borders.

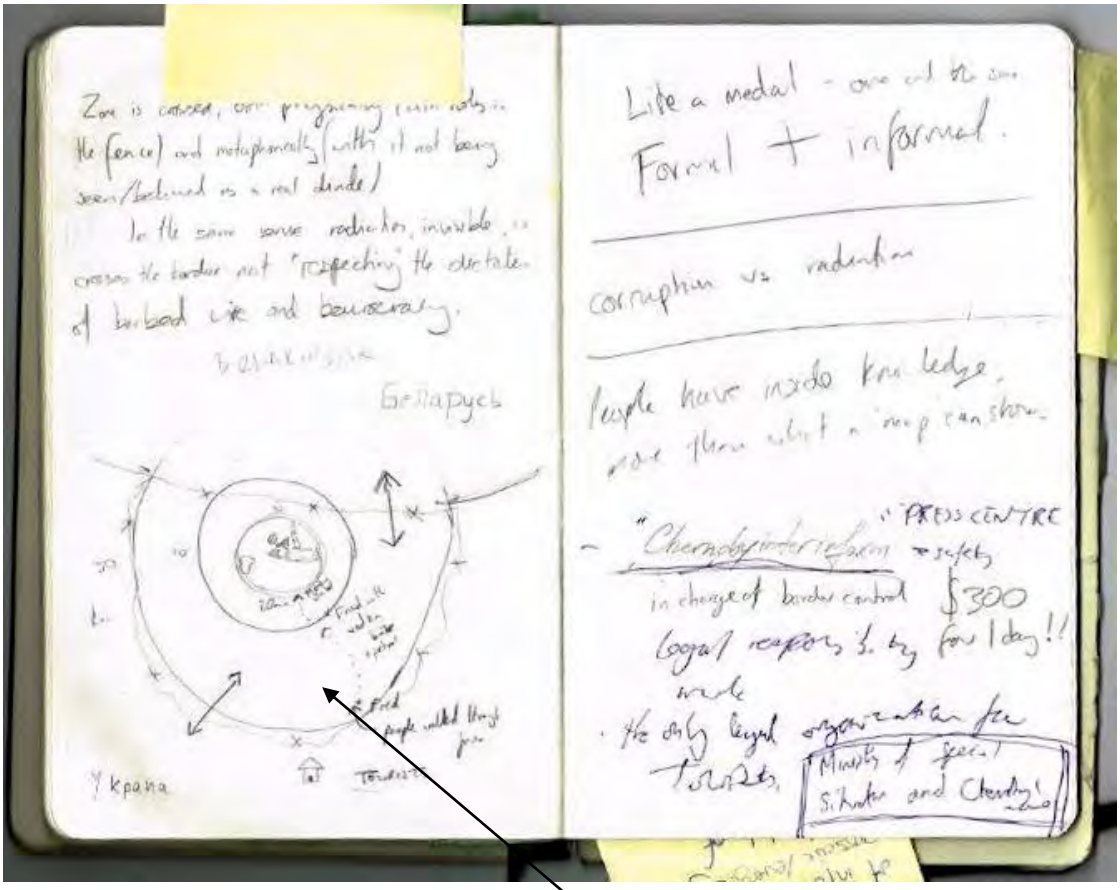


Figure 29: *Fieldwork diary sketch showing the informal cartography of Viktor's tactics for entering the Chernobyl Exclusion Zone (sketch on the bottom left).This is expanded upon in the following figure 5.4.*

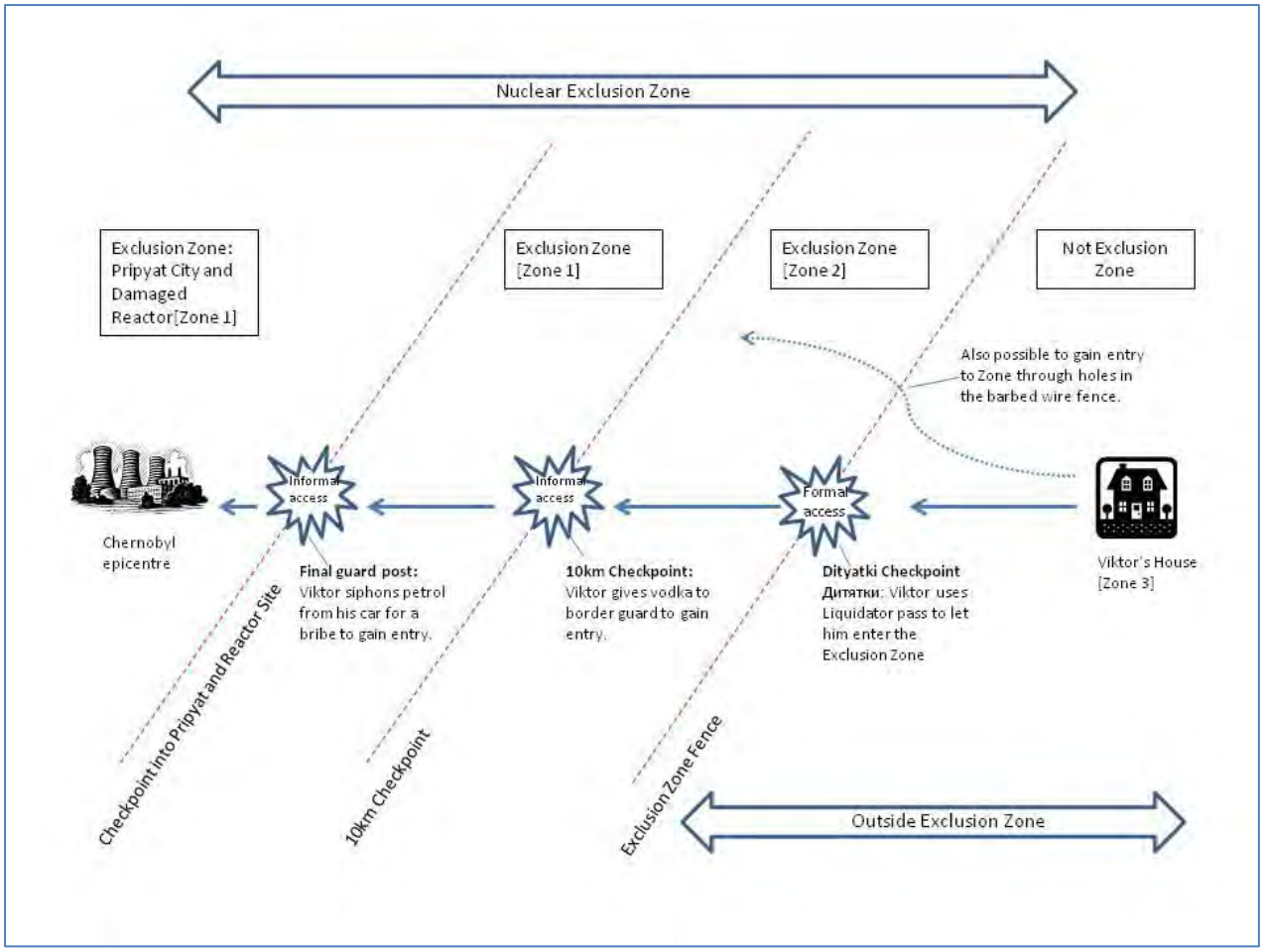


Figure 30: *Diagram illustrating informal access to the Exclusion Zone, based on conversations with Viktor.*

5.4.1 Beating the system

While regaling his various exploits within the Zone, Viktor's expression was that of the young soldier in his military scrap-book, and unlike the aged portraits shown on his liquidator pass. He had a clear sense of satisfaction in beating the system. Borders such as the one seen through Viktor's window - between the 'clean' and 'contaminated' territory of north-central Ukraine - are places where it is 'possible to see the potential conflict between the citizens and their state amplified to the maximum' (Polese 2011, 22). For Viktor, being able to negotiate the state-enforced border was a minor victory against a government that had done so little to help him. While the informal activities that he and many others described were clearly expressed with a sense of joy, they were not in themselves

exceptional behaviours but part of an intricate formal-informal spectrum of everyday activities, part 'resistive' but at the same time embedded social practices. '*It's our tradition*' he explained.

Dissatisfaction with the government and frustration with their handling of the Chernobyl disaster is a widely held opinion in this region. It was illustrated time and again by many people who live with Chernobyl – including Viktor's mother-in law, who was the unsuspecting butt of Viktor's mushroom joke[96] at the beginning of the chapter:

> *'We can do nothing, people in the government just fill their pockets with money and just give a few hryvnia to the people'*
>
> - (Viktor's mother-in-law, late 70s.)

> *'the government lied to us. It seems like they are liquidating the liquidators!'*
>
> - (Male, late 50s, former liquidator)

> *'Nobody cares about us, we just live here and die here. We have nothing. All we have for today is life and what we have for tomorrow is just sleeping in the cemetery.'*
>
> - (Female, 70s)

As de Certeau suggests, for those who lack power, there is a 'pleasure in getting around the rules of a constraining space' (de Certeau 1984, 18), especially if there is such a large government structure imposing itself on your local landscape – such as the Zone. For many people, Chernobyl has become the framework around which people can express their dissatisfaction with the State. For this very reason, the conquering and contesting of these state-contrived spaces becomes an expression of resistance and a demonstration of agency in difficult economic and social circumstances.

For some scholars of informality in post-socialist space, it is this rule-breaking and 'getting one over' the state that is a key driving force behind, and way of understanding informal activity. For example

[96] Viktor's joke about taking contaminated mushrooms to his mother in law, should not be read as making light of the Chernobyl disaster but rather as a way of using humour as a coping mechanism, as discussed by Macpherson (2008).

see Alena Ledeneva's interpretations of *blat* as a means of 'beating the system' (1997, 159; 1998, 46, 58). In Chernobyl however - a region where strategic nuclearity has inscribed the invisible risks from nuclear contamination onto the landscape - a more nuanced reading of these informal activities is called for. Viktor's ability to transgress the official nuclear spaces of Chernobyl (an informal activity described by many research participants) is a paradigmatic example of tactical resistance to dominant power structures. When discussing practitioners of tactics, de Certeau illustrates how:

> 'They calculate, come and go, overflow and drift over an imposed terrain, like snowy waves of the sea slipping in among the rocks and defiles of an established order' (de Certeau 1984, 34).

People who live near Chernobyl, who regularly enter the Exclusion Zone to engage in informal practices can be framed in this way, as masters of the tactic. De Certeau's metaphorical rocks can be replaced by the 'established order' of Chernobyl's official nuclear landscape; the sea replaced by Viktor and many like him, who know how to navigate official nuclear space. They themselves hold little power, but like the water in the sea, are able to slip in-between the rocks and official-structures that control their everyday life. The official spaces of Chernobyl are an 'imposed terrain' (de Certeau 1984, 34), a formal geography emplaced by the state. Yet the way people choose to navigate and interact with this established structure is not always in line with the formal territorialising logic of power, nor either, the way this exceptional space has been governed. As such, instead of being a totalizing institution of sovereign power, the space of exception can become 'a terrain of resistance' (Antonsich 2013, 176), places where tactical actions and subversive practices can rise to the surface and undermine the rules and regulations of strategically ordered space.

5.5 Qualifying Resistance

At this point it is important to interrogate what is meant by 'resistance'. Some recent scholarship has argued that resistance can only be considered thus if the forms and practices of resistance are actually capable of making change (Katz 2004; Jones 2012); in other words resistance can only apply to situations where 'contestation can potentially overthrow the polarity of power relations' (Jones 2012,

694).[97] I depart from this framing of resistance, and view the fixation on the *results* of activities as far too reductive in scope, as it focuses too much on the outcome of resistive actions (i.e it is a form of consequentialism). Instead, the approach of this thesis follows Goffman's (1961) notion of the unseen 'underlife' of institutions, and Scott's (1984) ideas that resistance can be embedded in everyday actions - irrespective of outcome (also see Sharp et al 2000). We can also draw upon ideas of 'small' agency (Honkasalo 2009, 62) or 'counter-conducts' - which are not so much 'monumental acts of individual agency' (Conlon 2013, 142), but rather subtle efforts that at least open up the potential for change (see Moran 2015a). This also invokes de Certeau's framing of power, where he states that tactical resistance is:

> 'determined by the *absence of power* just as a strategy is organised by the postulation of power' (de Certeau 1984, 38 emphasis in original)

The failure of tactical resistance to affect radical change to the 'strategic' spaces of the powerful is unimportant in de Certeau's framing of power and resistance. In fact tactics are methods to 'escape or subvert authority' (Cupples 2008, 116) not overthrow it - such as Viktor's (and other's highlighted later) informal-spatial practices inside the Zone, and their unofficial cartography. These behaviours do not fundamentally change the status quo, which appears to be the reading of resistance favoured by Jones (2012) - but nevertheless run against the formal narration of space. As such, this kind of resistance should be seen as 'part of a continuum rather than as singular heroic acts that bring about a radical break or a new political order' (Conlon 2013, 142). As de Certeau suggests, tactical practice 'insinuates into the other's place, fragmentarily, without taking it over' (1984, xix) – it does not seek domination.

5.5.1 Resistance in everyday life

While a few geographers have cited situations of resistance within spaces of exception, it has usually focussed on the overtly political. For example, evidence of resistance within the 'go-to' Agambian space of exception – the refugee camp - is described in the existence of 'Palestinian political and

[97] Resistance that does not radically change the constellation of power relations has been - in my view unfairly - dubbed 'decaf resistance' (Contu 2008, 364).

military factions; the armed guards patrolling the streets in the name of national liberation movements; the murals, flags' (Ramadan 2013, 74); this matches politics with counter politics, and plays the sovereign at its own political game. Following de Certeau and Scott's embedded reading of resistance, we are able to see tactical resistance in the everyday lives of those marginalised by Chernobyl. This may not be overtly political, but it nevertheless runs counter to normative formations of space(es of exception). This form of resistance has historical precedence too, for example during the class struggle of the French revolution:

> 'Resistance, however, was less to be found in the open protests, petitions, riots, and revolts that did occasionally erupt but rather in a quiet but massive pattern of evasion' (Scott 1990, 195)

The massive spread of informal activity around the Exclusion Zone, ranging from illegal scrap metal extraction, mushroom picking, poaching, hunting, informally moving back to live in 'excluded space', and other unofficial practices, demonstrates a spectrum of informality that not only resists the formal emplacement of nuclear space, but also runs counter to state governance. These behaviours may not contain the overt politicization of other resisted spaces of exception, but they take place against a backdrop of the stealthy violence of abandonment, by a state that is perceived to be indifferent to widespread marginalization. Though the informal activities that occur around this post-atomic space of exception lack the highly visible mural painting and flag-waving vitriol demonstrated elsewhere (Ramadan 2013), it is precisely the *invisibility* of Chernobyl's informal practices that allow it to occur within the 'cracks' of Chernobyl's strategic and exceptional framework. As Roxanne Doty concludes in her paper on bare life and border-crossing at the US - Mexico border:

> 'spaces of exception are always incomplete with numerous fissures and cracks that hold the possibility of letting in some light, however dim and wavering that light may be' (Doty 2011, 610).

As with other participant interviews, in the conversations with Viktor about his informal practices, he showed an obvious pleasure in being able to informally subvert the 'border processes' (Newman

2006) that occur within sight of his own house. These spatial acts of resistance, however 'dim', 'wavering', or ineffectual they may be to the continued formal operation of such spaces, were nevertheless extremely important behaviours, which I will expand upon further, firstly by looking in detail at one informal practice in particular: scrap metal extraction from the Exclusion Zone.

Whereas food and informality has been a widely researched area of scholarship in the post-socialist setting (see Rose 1994; Pallot & Moran 2000; Moran 2001; Smith & Stenning 2006; Caldwell 2009; Ries 2009; Round et al 2010), for example emphasising the importance of foraging for forest goods as a key traditional survival tactic that exists beyond the formal economy (Staddon 2001, 2009; Jehlička & Smith 2011, 2012), there has been little research into the gathering of material non-food objects from the landscape as a means of survival. Informal scrap collection described in the following section should be seen in relation to other research on foraging, except instead of forest goods, this form of foraging involves the locating, gathering, and extraction of waste material from a place of exclusion. This thesis will explore in detail people's relationship with food and informal food practices in the following chapter.

5.6 Scrap Metal Collection: Blurring Nuclear Borders

Informality - as demonstrated in the wider literature - is common throughout Ukraine and across post-socialist space more broadly, however the unusual landscape of Chernobyl and the way the space of exception has been governed creates a unique set of problems and opportunities for those who engage in informal activities. One informal economic activity that, perhaps more than any other, can be read as a de Certeauian 'tactic' that seizes upon 'chance offerings of the moment' (de Certeau 1984, 37), is the collection and removal of scrap metal from the Exclusion Zone. This widespread and illegal practice, encountered during the research, is also one of several activities that conspire to *blur* the boundaries of formal nuclear space, as it involves transferring excluded and potentially contaminated material from the Zone into the formal economic sphere, via informal mechanisms. The metal, once collected from the abandoned buildings, infrastructure, and urban pockets within the forbidden Zone, is smuggled beyond the confines of the Exclusion Zone's borders, into the outside and 'unexceptional' normality of the rest of Ukraine. This mobility dissolves any perceptive semblance of

contamination that had been cast into the material through its previous 'nuclear' location (see Figure 4). It also transfers these objects from the informal sphere into the formal economic market, where they 'disappear'. This practice is an example of agency, an informal activity carried out by individuals who may be conceived as excluded 'bare life', who contest their marginalised status by subverting the official rules of Chernobyl's strategic and exceptional spaces.

A related example involving working with scrap materials in a place that has been theorised as a 'space of exception' is research into forced labour in United States prisons (Nowakowski 2014). Here inmates are forced to labour inside places of incarceration, including handling and recycling computer parts and electronics, exposing the prisoners to potentially hazardous materials, leading Nowakowski to frame US prisons as 'landscapes of toxic exclusion' (Nowakowski 2014). By contrast, in Chernobyl those who informally handle potentially contaminated scrap metal do so out of choice, although widespread economic marginalization and inadequate welfare support means that for some there is little alternative. As one man who regularly smuggles scrap material from the Zone told me:

> *'we have no way out – unless you can you steal something; if you cannot steal something – you are hungry....'*

There has been little study of informal scrap metal collection from environmentally risky environments[98], with the exception of work on the 'informal recycling sector' (Wilson et al 2006) in developing countries which focuses on the informal collection of materials from mixed waste sites. Here, like in Chernobyl, this informal activity is often performed by 'outcasts and marginal groups' (Wilson et al 2006, 803). Unlike the informal recycling sector however, where goods such as textiles, paper and plastics are salvaged from the stench rubbish tips, Chernobyl presents a situation where the extracted material itself holds the *potential* to (imperceptibly) harm. The unlawful nature of this activity has parallels with research on 'illegal waste management' (van Daele et al 2007, 36) where the mafia is involved in disposing *unwanted* goods (D'Amato & Zoli 2011), yet with Chernobyl these informally gathered metals have a clear use and financial value once transported to the formal

[98] For a comprehensive evaluation of health and other impacts of *formal* scrap recycling see the United States Department of Energy study by Nieves et al (1995).

economic sector. This focus on the movement of abandoned goods from an area of 'waste' fits in with a call by geographers for more research on 'waste mobilities' (Davies 2011, 191).

5.6.1 *Accessing Nuclear Space*

As illustrated in the following interviews, entry to the Exclusion Zone is secured through a range of formal, semi-formal and informal mechanisms. For example if you already have permission to enter the Zone, such as being a liquidator or other permanent/temporary Zone worker (including border guards), then you can collect metal 'on the side'. This is analogous with other workplace informality where people take goods and materials from their place of work (Round et al 2008b). A second option to transgress the nuclear border is to gain informal consent to enter/leave the Zone through bribing the border militia, or being part of their social network. This in turn may involve 'gift giving' or another form of reciprocity. This option allows the removal of larger quantities of metal as it is possible (with informal permission) to use vehicles to transport material – though there is the investment of the bribe to consider. Lastly, respondents also described entering and exiting the Exclusion Zone to collect scrap metal entirely independently, by navigating over or through the fence that surrounds the Zone. This form of informal cross-border mobility has its own forms of challenges and risks should the practitioner get caught (Table 1). As can be seen from the following table, the varying ways of entering the Zone to collect scrap metal have differing levels of official-formal involvement. The informal border processes involved in scrap metal collection will be demonstrated in the following ethnographic vignettes.

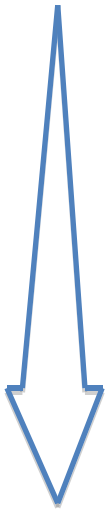
	Method	Requirement	Advantage	Drawback
Formal involvement 	**Formal:** Use already secured permissions and formal documents to enter the Exclusion Zone.	**Documents:** Official documents and passes allowing formal work within the Zone (e.g temporary laborers, militia, foresters etc.)	a) No bribery necessary b) Can form a second informal income to supplement low formal pay. c) Likely to know 'useful' people and use official knowledge to your advantage.	**Losing formal employment:** Being caught by militia who are not involved in informal activity (or are not bribable) may lead to being sacked, and therefore severed formal access to informal practices.
	Semi-formal: Bribe militia to allow entry/exit to Zone or to 'turn a blind eye' to the informal labour.	**Bribery/Connections:** Money or goods such as vodka, petrol etc. and/or social networks that include border guards and other Zone workers.	a) Possible to remove large quantities of metal, even with the use of vehicles (lorries/cars etc). b) Less likely to be arrested if authorities already implicated.	a) **Expensive** to bribe (or informally reciprocate) and difficult to organize. b) If you renege on informal bribery agreements you could face serious difficulties and dangers.
Informal (independent)	**Informal:** Sneak through or over the fence around the Exclusion Zone	**Local Knowledge:** An in-depth local knowledge of the surrounding area, escape routes and an intimate knowledge of the forest.	a) Requires no one else, or the need to bribe (if successful). b) Relies on local expertise: likely to be more knowledgeable than militia.	a) **Getting caught** by border guards can mean a fine or prison for repeat offences. b) **Limited extraction:** Unable to carry large amounts by hand through fence.

Figure 31: *Outline of the pros and cons of different formal-informal methods of accessing the Zone to extract scrap metal. Based on conversations with scrap metal collectors and participant observation around the Exclusion Zone.*

5.6.2 Porous Borders

I visited Viktor in the winter when the view from his window towards the Zone was white with snow; the distant conifer trees drooping under its weight. I walked with him and his brother in-law Igor through the conifer trees until we came to the border fence - the physical embodiment of a failed state

attempt to contain harmful radiation. Everything beyond the border was illegal space, a post-nuclear space of exception where different regulations, exclusions and modes of behaviour apply. It is of course like any other fence: six foot high with wooden posts every few meters and topped with barbed wire. Low-level radiation is not stopped by it, nor are the informal ebbs and flows of people and goods from within the Zone - as indicated by the large person-sized hole that we were standing in front of.



Figure 32: *A man and his dog stare through a hole in the barbed wire fence into the forbidden territory of the Exclusion Zone: an informal crossing point used by Igor and many others. [photo by Thom Davies]*

Like many borders, 'the state is the ultimate judge and has the right to set limits, to decide what is good and what is bad' (Polese 2011, 22); what is inside and outside, what is 'clean' or 'unclean'. It is the state that decides on the official boundaries, nuclear borders, and limitations of an invisible risk, who emplace and perform the official nuclear geographies of the Exclusion Zone. On the other side of

the fence a track runs parallel to the border, allowing the militia to patrol, and beyond that is the darkness of more woodland. Standing in front of one of the many human-sized holes in this porous border, Viktor explained how numerous people pass in and out of the Zone in this way:

> *'It is the perfect place to commit a crime... some people bring out things that were left in the Exclusion Zone, they take out all the gold and expensive things.'*
>
> (Viktor)

Igor described how he removes scrap metal from the Zone, not 'gold' but the usual metals one would expect to find in urban and rural places that are suddenly, and remarkably, abandoned due to their potential hidden dangers. He described how he and many others collect aluminium, copper and iron, taking it from the many abandoned buildings on the other side of the fence: cables, piping etc. He discussed selling the metal outside of the Zone: '*to different dealers. We take it to the factory where it is crushed, melted down, and mixed with other metals...'*. From here it is in the formal economic sphere and *'...it is impossible to find or trace it.'* - it becomes invisible. The informal removal of scrap metal from the Zone was discussed by several respondents as a key informal economic activity.

Other scrap metal collectors described how they would strip metal from abandoned buildings inside the Zone and then, instead of smuggling the metal out through the nuclear border themselves, would sell it to a scrap yard *inside* the Chernobyl Exclusion Zone [see **Figure 33**], who have paid-off the police and authorities in the Zone.

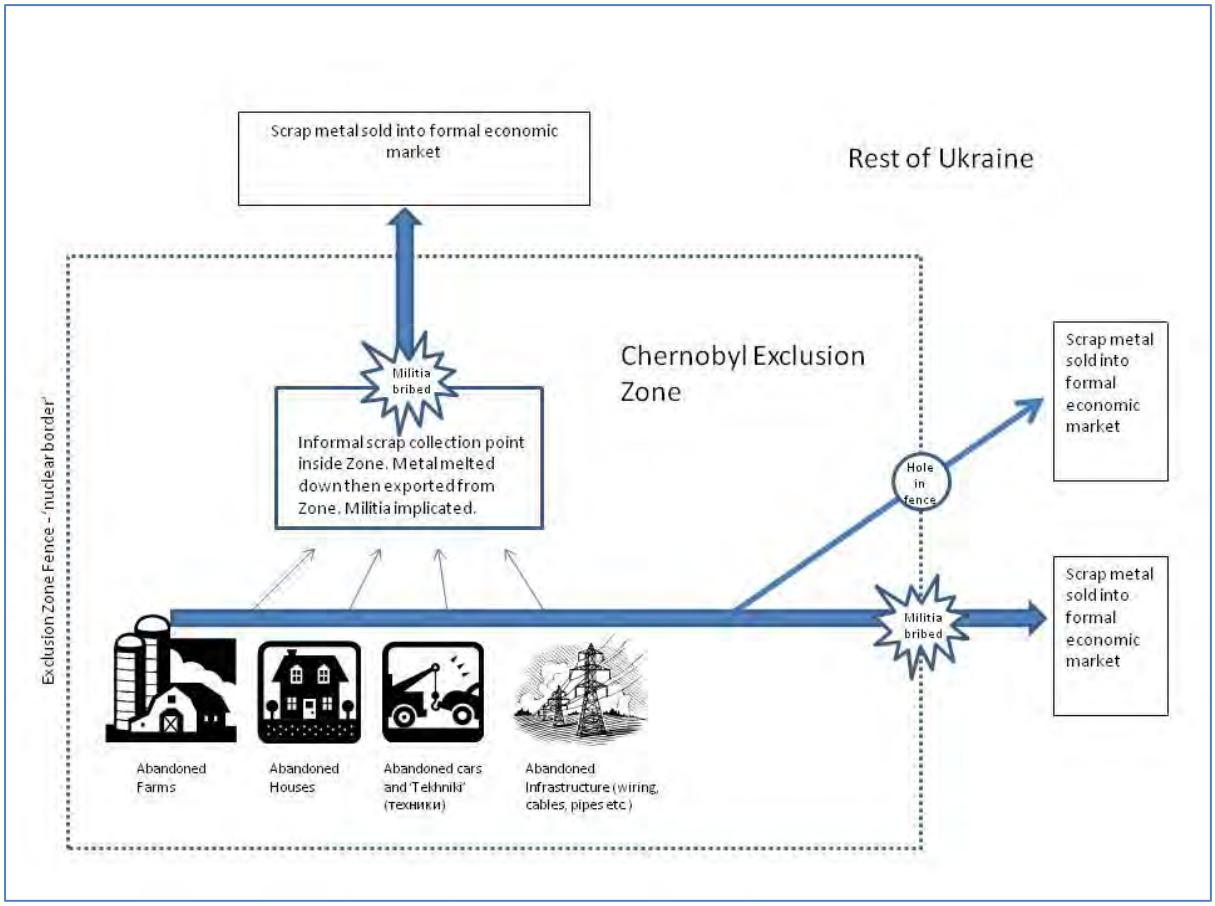


Figure 33: *Diagram showing the three routes for informally collected scrap metal from the Chernobyl Exclusion Zone to enter the formal economic market.'Tekhnika' (technology) was used by liquidators and clean up workers to refer to the special vehicles used in the clean up operation, such as specialist diggers.*

For example the case of Denis, who is the son of a shopkeeper in a border village where I regularly stopped for coffee and supplies. He told me how:

> *'Sometimes I go into the Zone and get metal. There is still a lot left, like before you get to Chernobyl town there are some buildings. And sometimes the militia know about this too. And you can take this metal and give it to people in Chernobyl town and they give you money. And everything is arranged with the militia. For the militia it is big business.'*
>
> (Denis, late 20s)

Chernobyl town which is inside the Exclusion Zone has a small semi-permanent population who work on the decommissioned reactor site, situated 13 km further north. [99] On the outskirts of Chernobyl town there is an informally run scrap yard described by participants, where waste metal is sorted before being informally exported from the Zone. The Ministry of Industrial Policy of Ukraine list 2400 licenced scrap yards in Ukraine (SNRC 2009), but the moratorium on economic activity in the Exclusion Zone means the scrap yard in Chernobyl town is not one of them, hence the informal arrangement with the border police, and 'big business'. When asked to elaborate on how he ended up collecting metal Denis explained that, unlike Igor who ventures into the Zone via the holes in the fence, Denis had formal permission to be inside the Exclusion Zone. With this permission he was able to collect scrap metal 'on the side':

> *'I worked in Chernobyl in the winter. We got the metal at night-time. I was working officially in the Zone at the time, but still, I had to gather this metal at night. There is a place in the Zone, some guy holds it [owns/controls it]. The militia know about it and receive some percentage of the earnings'*
>
> (Denis)

His temporary job inside the Zone allowed him access to the abandoned material that could be collected. Despite obtaining official permission to be inside the Zone, the scrap metal collection had to take place during the night, in part due to the potential of being caught in the act by militia who may solicit bribes or arrest him, but also because during the day he had to work in the Zone as a labourer.

It is commonplace to work several jobs in Ukraine in order to deal with prevalent economic precarity. A fifth of Ukrainians receive incomes beneath subsistence minimum levels (Williams et al 2014),[100]

[99] Chernobyl town is the main historic settlement in the area. Dating back to Kyiv Rus and appearing on many old maps, the town gives its name to the local region as well as the nuclear disaster. The epicentre of the accident was actually closer to the abandoned city of Pripyat, which housed the reactor workers. Before the accident Chernobyl town was the main administrative centre for the region, hence why the disaster came to be known as 'Chernobyl'. Ivankiv city (south of the Zone) has now assumed the role of administrative centre for the region, with law courts and local government buildings.

[100] Furthermore, this 'subsistence minimum' level only permits a very poor diet and living standard well below what would be constructed as poverty in other countries (Round & Kosterina 2005).

and in a survey by Rose (2005) only 27 percent of people surveyed reported earning enough money from their primary job to survive. The remaining 73 per cent work multiple jobs, and often in the informal sphere. In this example from the marginalised region around Chernobyl, both Denis, and the border guards who are implicated in the removal of scrap metal, use their formal position to elicit informal gains. This formal-informal mechanism can also be reflected in different settings and case studies across other areas of the former USSR, and beyond (Morris 2012; Smolyak 2014).

'You cannot imagine the scale of this' explained Viktor, when describing the informal extraction of goods from the Zone. As with most informal activity, there are no official statistics on how much contaminated material has left the Exclusion Zone. Based on conversations with scrap metal collectors, the financial rewards one can make from successful scrap collection can be quite high [**Figure 34**], with scrap collectors able to earn well in excess of average income.

Metal	Price per Kilogram on informal market (₴ hryvnia UAH)	Price per Kilogram on informal market (£ Pounds sterling)[101]
Copper	45	£2.15
Steel	19	£0.90
Aluminum	7-8	£0.40
Iron	1.2	£0.06

Figure 34: *Based on interview data with Chernobyl scrap collectors. Other metals such as lead and zinc are also collected but it was not possible to establish the price.*

As the above table shows, it is possible to make decent money from this informal activity, and comparing the amount of money one can make from scrap metal extraction to the paltry compensation

[101] When compared to the going rate for scrap metal collection elsewhere, the amount of money you can make from scrap from Chernobyl is only 30-40% less the UK *formal* market (via greengatemetals.co.uk). It must be noted that informal/illegal scrap metal collection is also widespread in the UK and other countries, for example from building sites and Church Roofs etc.

people receive is revealing. For example, even with the cheapest material such as iron, one iron radiator that weighing 100kg would make £6 when sold informally, or the equivalent of five years worth of 'compensation'. Alternatively you would need to collect less than 50 grams of copper to equal a month's worth of welfare support. Not only does this further show the practical redundancy of the compensation system, but also how informal activity such as this is therefore a more practical means of buying everyday items such as bread than relying on the false promise of welfare.

Years of informal scrap metal collection inside Chernobyl has altered the abandoned urban spaces of the Zone remarkably. For example the ruined city of Pripyat, which has been photographically reproduced by countless 'ruin pornographers' (including myself: see Figure 5.8), is almost entirely gutted of salvageable material. Pipes have been ripped out of walls, doorknobs removed, and almost the entire contents of most of the apartments that once housed 50,000 people has disappeared. Only the detritus of late-Soviet everyday life remains: the occasional family photograph, an overturned cupboard, an old newspaper, and so on. An elderly lady who lives in Dytatki village, right on the edge of the Zone where the main checkpoint is situated, told me:

> *'My dear, you have not seen so much as I have seen. This is the main road that they use to take stuff from Chernobyl, I have seen them take everything: washing machines, sewing machines, furniture, carpets – everything! The carpets absorb huge amounts of radiation, you know, 'hot elements''.*

(Female, 80s)



Figure 35: *A newspaper on the window sill of an apartment in Pripyat City, dated 22nd April 1986, five days before what one former liquidator calls 'that tragic night'. Many salvageable goods have been taken from the Zone. Photograph by Thom Davies.*

The highly salvaged urban spaces of the Zone were remarkable not only to my own outsider's perspective, but also to Alexandr - a former liquidator who took his daughter Katya to the Zone to show her where he used to work:

> *'Marauders took off radiators, a lot of radiators. Katya took this picture of a kindergarten and near this kindergarten there is a pile [a lot] of radiation. These are just radiators, the weight of one iron radiator is about 100 kg, but we are talking about the export of heavy metal, tons and tons of it'*
>
> (Alexandr, 60s)

During the interview with Alexandr he showed me photographs that his daughter Katya had made on one of their visits to the Zone. Each year on the 9th of May the Zone is open to people who have family buried in the many overgrown cemeteries, allowing people to visit the graves of their relatives. As well as showing me photographs of the piled-up radiators that were waiting to be scrapped[102], he showed me images of the large 'vehicle graveyard' inside the Zone at a place called Buryakovka, where cars, helicopters, trucks and other vehicles used in the liquidation of Chernobyl are stored due to their high contamination. I had been told about this place before in several conversations with people who regularly enter the Zone, including Denis who told me that 'there were lots of abandoned vehicles, and now they are gone', and how during his time doing temporary (formal/informal) work in the Zone: 'tractors came and were searching for more vehicles'. Viktor, who had worked as a liquidator in the Zone from the time of the accident until he got the sack in 2008, recalled stealing a couple of cars from the Zone in 1993 when, as he described it, 'there was no state then':

> *'We stole two vehicles from the Zone, we stole them later and sold them to the Militia. They sold them for $150 and the other for $200. And it was a new car, of course polluted. It was really cheap because they only had 10,000 km on the clock'*
>
> (Viktor)

He explained that most of the technical vehicles (diggers, bulldozers etc.) had been illegally smuggled out of the Zone, including those that were originally stored in the vehicle graveyard that Denis, Alexandr and others had described. Indeed, while showing me his daughter's photographs, Alexandr explained that over the years these abandoned vehicles have been heavily salvaged by people who sold the metal for scrap:

> *'Here should be an axle, but they took it off, only the gear box is left. These are the very transport units that liquidators used…this is a fire vehicle, but it is just a beginning. This is an ambulance, here you see there is no engine, no wheels, every single detail was taken off'*.

[102] If the radiators were indeed 100kg of iron (the least valuable metal) then based on interviews with scrap collectors this would achieve around £6 per radiator on the informal market.

(Alexandr)

Back near the hole in the fence I asked Igor and Viktor if the scrap collectors knew which metal was dangerous. Viktor described how there are no formal checks on the contamination levels of the exported scrap material, only the thought that: 'if its roughly clean then take it. If it is highly polluted they leave it.' However, none of the scrap collectors I spoke to said they used Geiger counters themselves when they collected the metal. In a separate interview I asked the same question to Denis and he explained how:

> *'After they take the metal there [to the scrap yard in Chernobyl] it gets washed and burnt with fire, and maybe then there is no radiation there? At that point the metal is checked with a dosimeter.'*
>
> (Denis)

I ask what becomes of the informally extracted metal, and he said it is made into a variety of objects, including 'spoons, plates, vodka shots, all made from metal from the Zone.' There is of course no way of verifying for certain where the metal ends up, as using a 'follow the thing' (Cook 2004) methodology was impossible due to the illegality and invisibility of this mobile salvage. Even if informally checking scrap metal involves the cyborg necessity of using dosimeters,[103] this 'self-surveillance' by the informal scrap metal collectors bypasses the formal checks of material and bodies that usually takes place when objects and people leave the Zone. Based on participant observation at the main entrance/exit to the Exclusion Zone and several formal (documented) visits, it is standard practice for border guards to check all vehicles that leave the official nuclear territory of Chernobyl, as well as scanning people in upright radiation monitors (Figure 5.6). This border check is also outlined by the 'State Nuclear Regulatory Committee of Ukraine' (2009).

Having said this, in 2011 I was on an official tour of the Chernobyl Zone with a UN delegation of scientists. One eccentric Belarusian biochemist who sat next to me on the coach, told me how he

[103] Scrap collectors such as Igor and Denis do not even use Geiger when they collect scrap metal, meaning the decision of whether to collect scrap is based on availability of the metal as opposed to personal safety.

intended to take samples from Pripyat to his laboratory for an experiment. Sure enough, and to my amusement, I later saw him busily locating the most contaminated plants he could find, and when the tour guide was not looking - hastily stuffing them into his bag. As we went to leave the Zone, and our bodies and vehicles were scanned, his highly contaminated rucksack was able to pass through the border security procedure without problems. This made me revaluate the Zone's border procedure as more a ritualised atomic 'border theatre' (Amoore & Hall 2010, 299) than a rigorous measurement of risk. Furthermore, it goes without saying that even this safety performance is something that informal scrap metal extraction avoids entirely. Despite the *State Nuclear Regulatory Committee of Ukraine* (SNRC) insisting that 'Only cleared material with radiation certificates is transported out of the Zone' (2009, 20), interviews with informal metal extractors and participant observation shows this is clearly not the case.



Figure 36: *Participant photograph (May 9th 2012) taken from the back seat of a car, showing the 'border theatre' (Amoore 2010) procedure of formally entering the Chernobyl Exclusion Zone at the main entrance to the Zone at the Dityatki village checkpoint. On the left of the frame a border guard*

instructs the driver to stop, while two other border guards on the right of the frame check the documents of the red car's passengers. In the background we can see the raised barrier to the Zone, and several police buildings and the building where people are scanned for radiation when they leave the Zone. The trees in the background are inside the nuclear Exclusion Zone[made using a Kodak disposable, with flash].

Beyond the use of Geiger counters, the only sign that salvaged metal may be contaminated is its location - inside the Exclusion Zone. When scrap leaves the Zone, the movement of the potentially contaminated material dissolves any perceptible sign that the metal may be harmful, and as Igor says *'...it is impossible to find or trace it'*. The geographic placement of the material that has been informally extracted from the Zone snuffs out its 'nuclearity' (Hecht 2014), making its nuclear potential 'disappear'. By changing the place of these collected materials that are informally relocated across Chernobyl's nuclear borders, individuals are able to blur the boundary of the Zone, not only with their own bodies as they cross into and out of the Zone, but also through extracting material that makes its nuclearity disappear. This informal waste mobility therefore contests the neat nuclear boundaries of the Exclusion Zone and challenges the strategic construction of nuclear space.

2.4.2 *Risk of getting caught*

Doubtless, in a landscape of widespread unemployment the money one can make from informal scrap extraction is relatively high. Putting aside the health risk (understandings) from radiation that will be discussed later in the thesis, the risk of getting caught doing this illegal activity is a very real possibility. Several people discussed what happens when they get caught doing illegal activity. For example, Igor who had for some time built up good relations with some border guards, had an ongoing deal with them that meant he could drive a vehicle in and out of the Zone unchecked. However:

> *'[...]we took scrap metal out of the Zone, with a lorry – I took my brother but he is not so generous. You see, we had an agreement with the militia that meant we could take scrap out through an unofficial route...so when we left the Zone on the way back they*

> *arrested us. The price of the agreement was three litres of vodka. But when we were arrested there was no longer any chance of giving a bribe. This was a year and a half ago. They took us out of the lorry, surrounded us with guns and put our face in the sand, and beat us. After that, they took us to a Judge in Ivankhiv and we had to pay a 150 hryvnia fine'.*

That could have been avoided, if his brother had provided the vodka. The official punishment was a fine of 150 hryvnia (£12) each. The unofficial punishment (for not providing the vodka) was a beating from the militia and the end of future informal links with these border police. When asked how much he could make from a successful journey out of the Zone he explained how each loaded lorry can fetch 2500 hryvnia (£200) which is then split between two or three men. One day's work could therefore make almost as much as a monthly pension.

2.4.3 *Involvement of border guards*

Many research participants spoke about how the border guards were involved in the informal extraction of scrap metal and other goods from the Zone. Examples included the complex deals with border guards such as Igor's arrangement to drive lorries in and out of the Zone; long standing deals with the scrap yard in Chernobyl town to 'turn a blind eye' to scrap exportation in exchange for 'a percentage of the earnings'; or the everyday scenario of being able to bribe militia who 'catch you in the act'. For example, several respondents said that '*most of the time you can just pay money and pay a bribe and it's ok*.' The involvement of state actors in the informal processes that take place around Chernobyl is both an advantage for those who want to gain access informally (through bribes, social networks, economies of favours etc.), but also a bone of contention among many others, who perceive the unequal power relations as detrimental and unfair. For example, a lady in Strakholissya village expressed her anger at the border police, comparing the behaviour of the militia to more prosaic (yet also informal) activity inside the Zone:

> *'There was a cemetery of helicopters and cars and tanks and other vehicles that were stolen by the militia. Everybody can get punished for gathering berries in the forest, but no one can touch the militia for stealing vehicles and metal.'*
> (Woman, 60s)

Supporting thus claim, a retired border guard interviewed for this research admitted to stealing from the Zone when he was stationed at the main checkpoint:

> *'I stole five cars from the Chernobyl Zone. We tried to take these cars to Kyiv to sell them but they did not allow us to pass the place where they wash them because they were radiated. But we got them out. The old people who went to the Zone had no possibility of retrieving their cars back because they were contaminated'*

The involvement of border militia in illegal scrap metal collection around Chernobyl does not mean that all border guards are implicated in extracting metal, soliciting bribes or 'predatory policing' (Mandleson 2008, 1). Doubtless many are not. As with other cases of institutionalised informality in post-socialist space however – most notably with traffic police (Osipian 2010), there is likely to be the pressure that informal benefits gained from soliciting bribes from illegal behaviour in the Zone should work its way up the hierarchical ladder to the top.

Article 267-1 of the Criminal Code of Ukraine (CCU) is titled 'Violations of requirements for radiation safety regime' and is aimed directly at the governance of Chernobyl. The first law, which is punishable by a maximum of one to three years in prison, relates to illegal activity including:

> '1. Any movement of foodstuff of plant or animal origin, industrial or any other products, animals, fish, plants or any other objects whatsoever out of the limits of exclusion zone or zone of unconditional (compulsory) resettlement without legal authorization or radiation control thereof.' (CCU 2001, 96)

Indeed the Article goes on to say that if the above crime is committed by an officer the punishment is increased and the border guard 'shall be punishable by imprisonment for the period from three to

seven years' (CCU 2001, 97). Indeed, the Chernobyl militia – on occasion - are not immune from prosecution themselves, though the enforcement of this is very rare and generally for political reasons. As Viktor explained, the involvement of border guards in informal activities can be used as a way to sack unwanted or rival police officers:

> *'The most notorious case was that the chief of militia was fired because three lorries of radioactive and highly polluted metal was taken from the zone, but one of the lorries was taken by the special police department. The only reason [they fired the police chief] was not to 'secure the Zone' and prevent metal from leaving, but it was just because someone needed to change the chief of the militia of the Zone …its just a good reason - an excuse.'*
>
> (Viktor)

In October 2008 four men were arrested for attempting to illegally export fifteen tonnes of scrap metal from the Exclusion Zone, including two police officers [see **Figure 37**].



Figure 37: *Fifteen tonnes of Seized radiators that were destined to be exported from the Zone, similar to the radiators that Alexandr had shown me. Photograph from Pripyat.com*

Victor's quote about the intentional (Machiavellian) dismissal of a high-ranking policeman is a useful reminder that strategies and tactics are not restricted to a binary between state and society. De Certeau's ideas of tactics and strategies exist wherever a power imbalance postulates, even within the unequal and competitive ranks of a corrupt police department. Here, for example, someone found it tactically useful to sack the border official, among the strategic status quo of ignoring profitable illegality.

It is evident from the previous interviews that informal behaviour such as scrap metal extraction is a widespread, complex, and officially 'unseen' activity that often involves border police. As Viktor said back in his kitchen, with perhaps only some exaggeration: 'Everyone who has worked in the zone should be in prison'. His throw away comment, based on 22 years of working in the Zone as a liquidator, makes an interesting theoretical point too: the pervasive informality and involvement of state actors in illegal activity, puts to question Agamben's focus on the *law* as the praxis of power and sovereignty. What if state actors themselves break the law? Who is the sovereign then?

5.7 Conclusion

It is clear that the official construction of nuclear space, with its rules, checkpoints and official cartography does not have complete dominion over the people who live with it. Clearer still, that marginalised individuals have developed tactics that subvert the edges this nuclear framework, and make the most of what little advantage they can gain from living near (or in) a contaminated space. Scrap metal extraction is one such example of a de Certeauian tactic of resistance (1984). While Chernobyl is an exceptional space, it is also a place of simultaneous exploitation and resistance.

The cracks and fissures in the strategic spaces of Chernobyl are not only shown in the physical breakages of the barbed wire that (in)completely encloses this nuclear landscape, but also in the possibility of using social networks and bribery to subvert the nuclear borders (even at times implicating state actors) . The bodies and materials that informally bypass the official spaces of the Zone work to blur the borders of Chernobyl, and question the containment of this nuclear landscape.

The nuclear borders of Chernobyl, fixed in place and performed through nuclearity, can be contested, and in this contestation of space we find evidence of tactical agency that contributes to alleviating the lived reality of bare life for those marginalised by Chernobyl. Though those with power are able to 'move' the borders of what is, and isn't officially nuclear, individuals are able to use informal activity to tactically move beyond these official borders and assert agency over the spaces they have been excluded from.

By taking the example of food compensation, we have seen how Chernobyl citizens are in a *de jure* sense included within the state's welfare system, and therefore a traditional reading of Agamben would cast these people as *not* homo sacer. However this interpretation ignores the reality of everyday life and the de facto abandonment that people experience. It disregards the actual workings of the law and the lived experience of Chernobyl compensation, where individuals are – in practice – effectively exposed as homo sacer to face the unseen violence of abandonment. The realities of exclusion and abandonment do not take place at the legal level, but at the level of everyday life.

By placing too much authority on the law as the arbiter of bare life we risk ignoring the actual experience of homo sacer and how people can overcome this situation informally (and not always with counter-political methods). At the same time, we have seen how the hidden and informal activities in everyday life, such as scrap metal extraction, are ways in which people can circumvent (spatially and economically) this experience of exclusion and vulnerability. By putting the ideas of de Certeau in conversation with Agamben we can see that bare life can be resisted informally. Spaces of exception can become terrains of resistance, and they are resisted tactically when viewed through de Certeau lens. Spaces such as Chernobyl, where power is so starkly laid bare, can even become places of empowerment, to people who would otherwise be dismissed as powerless bare life. In the next chapter we will continue this discussion and explore people's understandings of risk and their complex relationship with place.

Chapter 6: ***Informal risk understandings in nuclear space***

6.1 Introduction: synopsis [104]

While the concept of risk has been floating in the background of the two preceding chapters, here it will become the focus of my endeavours – to explore how risk is understood in everyday life. Foregrounded by discussions of de Certeau and Agamben, this chapter will expand upon these previous chapters, to uncover how the concept of risk fits in with this picture of abandonment and resistance that underscores the lived experience of Chernobyl. It will explore how the environmental health risks of this nuclear disaster are variously understood by those who live with it, and how these risks sit among other pressures of dwelling in this marginalised landscape. To do so will involve descending de Certeau's tower further, to walk street-level with the everyday realities of risky food practices, memories, local knowledge and place attachments that form the unofficial geography of Chernobyl. It will uncover the intricate ways that risk is entwined into the day to day rhythms of those who live in this nuclear hinterland. The chapter will draw upon the work of Mary Douglas (1966) in relation to the cultural production of 'dirt', as well as briefly referencing Heidegger (1971) and Tuan (1974) in relation to place attachment and 'dwelling'. The chapter also discusses the importance of (im)mobility for people who live near Chernobyl, and the agency that comes from staying with the polluted landscape, which can be framed in terms of tactics and strategies (de Certeau 1984).

This chapter will firstly outline the dominant risk understandings of Chernobyl, showing how the majority of people who live near the nuclear accident consider it to be an extremely dangerous hazard. This will be contrasted with the seemingly incongruous attitudes and behaviours that also occur, most notably being the rejection of relocation welfare. This disconnect will be explored by taking a wider view of people's memories and narratives (Henwood et al 2011), to see how the risks of Chernobyl fit in with other biographical events (Irwin et al 1999). It will also show how people understand the risks of living with Chernobyl in relation to the perceived plight of evacuees, where a belief that forced or

[104] Sections of this chapter are published in Davies (2015) and Davies & Polese (2015)

'disciplined' (Moran et al 2012) mobility has harmed (even killed) the evacuated population will be highlighted.

The chapter will then discuss how numerous participants believe they have '*adapted*' to the threat of radiation, in both a physical and emotional sense, where they describe their '*immunity*' to nuclear risk and their ability to '*absorb*' its hazards. This embodiment narrative will be explained via Douglas and Wildavski (1983) and Rayner (1992) who suggest that risk understandings emphasise and promote the values of the society in which they are produced: promoting here the idea that they are a resourceful, resilient, and strong community.

After rejecting the state-supported notion that risk behaviours around the Zone are based primarily on attitudes of 'fatalism' (MOE 2006), the chapter instead highlights how the pragmatic agency that comes from place attachment is vitally important. In relation to this, cultural constructions of dirt will also be explored (Douglas 1966) and the importance of domestic food production. The chapter will then focus on how participants used rural metaphors to show how they are 'rooted' in place, and how they contest their abjectified (Kristeva 1982) status as nuclear 'others'. Finally informal food practices will be explored, including the use of barter with potentially contaminated food, as well an ethnographic account of mushroom picking inside the Exclusion Zone, where informal understandings of risk are essential.

This chapter will continue the discussion of agency in a state of exception, by looking at the way risk is incorporated into the unofficial and informal behaviours of everyday life around the Zone. The scrap metal collection described in the previous chapter is just the thin edge of a spectrum of informal practices that make life in this environmentally precarious and marginalised location habitable [see **Figure 38**]. These behaviours, which will be outlined later in this chapter, can be viewed as forms of quiet resistance or 'counter-conducts' (Conlon 2013, 142) that are not aimed at social transformation or radical change, but nonetheless defy the dominant construction of space and power relations. They often also rely upon unofficial risk understandings that exist in contrast to the formalised and official risk governance of Chernobyl.

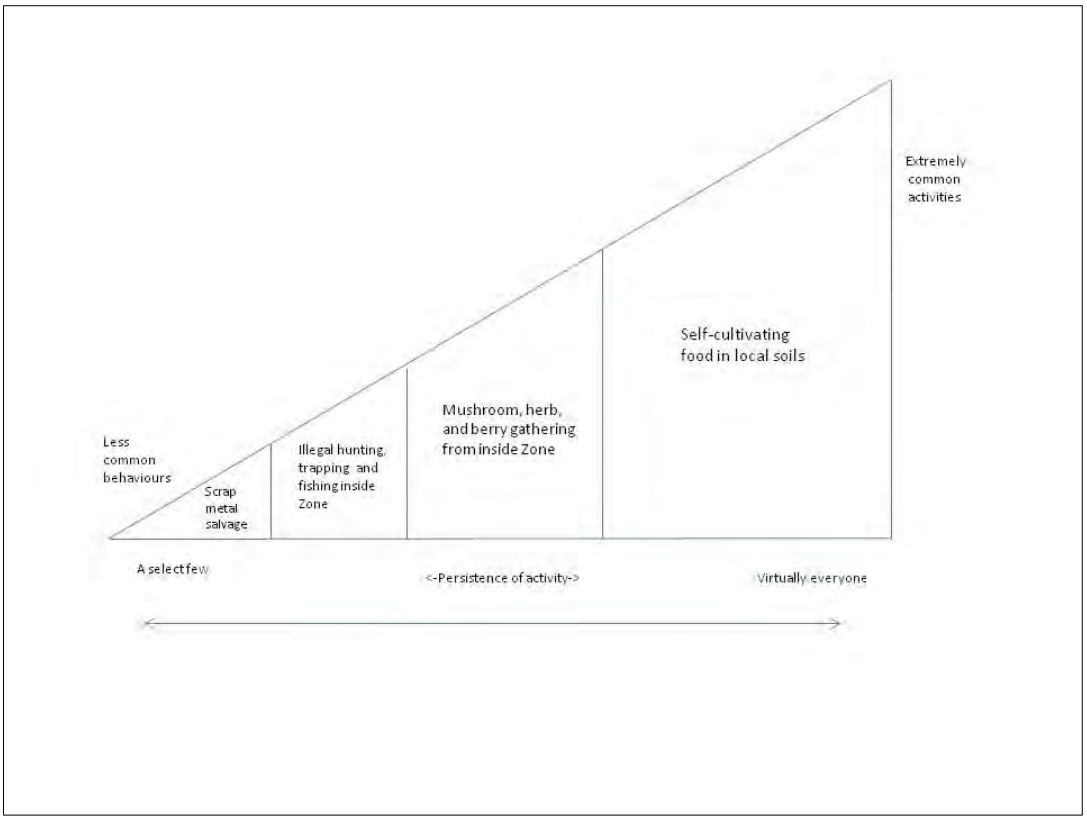


Figure 38: *In the Chernobyl region, scrap metal collection is at the thin edge of the wedge of informal behaviours that take place.*

The official geography of Chernobyl – a post-atomic space of exception – is designed in part to control and contain the risks of nuclear disaster.[105] However, running parallel to, or against this official risk-governance, are other informal understandings of the nuclear landscape and its inherent risks, which foster behaviours that are officially forbidden. From outright illegal activities such as smuggling materials from the Zone, to the semi-legal decision of returning to live *inside* the Exclusion Zone, to the technically legal yet unadvised consumption of food grown in contaminated soils; the activities described in this chapter both reveal both the complex risk understandings that people work with, as well as their capacity for agency, despite being rendered *homo sacer* by the stealthy violence of de facto state abandonment and exclusion. Informal risk understandings become part of the tools of survival (and resistance) that marginalised communities can draw upon.

[105] For a discussion of the 'state of exception' relating to securitization of risk, see Coaffee (2014)

Later in the chapter we will see how informal understandings of risk allow people to resist bare life in subtle ways, offsetting their vulnerabilities through local knowledge, place attachment, and informality. Firstly however, the dominant risk understandings expressed by those who live with Chernobyl will be explored, where it is clear that the overwhelming majority of people consider the nuclear disaster to be an extremely dangerous, deadly and on-going event. This will be contrasted with the seemingly inharmonious persistence of potentially risky behaviours, including those outlined in the previous chapter. This cognitive dissonance will be explored in relation to wider survival tactics adopted by marginalised communities around Chernobyl. To help illustrate the prevailing opinion that Chernobyl poses a serious health risk, the following section will start with an ethnographic snapshot of Dasha (60s) who I met during fieldwork near Chernobyl.

6.2 Dasha's photographs: Chernobyl risk understandings

Before '*the catastrophe'* Dasha had married a man who lived a few kilometres south of her home village, where she now lives alone, her husband having died '*from vodka*' several years earlier. This biographical tableaux of alcohol and death is far from unusual in Ukraine, where pervasive alcohol reliance - often a gendered practice - has contributed to male life-expectancies reaching below the age of 60 during the socio-economic chaos of the 1990s (Cockerham 2012).[106] It was not the personal tragedy of her husband's death that stood out when she talked to me, but a deeper heartbreak relating to place:

> *"My son was playing in the field when the catastrophe happened, he was covered in dirt. And some soldiers who had a dosimeter said 'Who's son is this?' and I said he was mine, and then they told me that he had received a very high dose, and they said he will not live beyond twenty years. My son died when he was 23."* [she begins to cry]

[106] Alcohol dependence has been well a documented cause of premature death, especially for men in post-socialism – (over)used to 'cope' with the emasculation of male identity (Kay 2006) and the social pressure of hegemonic masculinities (Hinote & Webber 2012). Alcoholism is still a major issue today, though male life expectancy has risen slightly to 64.5 years as of 2010 (Salomon et al 2013).

She explained how this village had narrowly avoided being included in the Exclusion Zone and that today the border fence passes a few hundred meters north of her house – the village she grew up in now lies off-limits and abandoned inside the Zone. The room we sat in was busy with wall-hung carpets, family photographs and ephemera: half-finished embroidery; an old accordion leant against the wall; her cat purring at my feet. *"I used to sing and play the accordion in the House of Culture"* she tells me, after noticing my interest in the instrument, *"but now that my children are dead I don't sing anymore"* [see **Figure 39**].



Figure 39: *Dasha's accordion leant against the wall of her living room in her house near the Chernobyl Exclusion Zone. Photograph by Thom Davies.*

Within sight of her back garden, to the north, is a bank of trees signifying the fenced edge of the Exclusion Zone. Visible beyond the trees are distant and dormant electricity pylons that once

transported energy from the 'Lenin Reactors' at Chernobyl to other parts of the USSR.[107] Like thousands of others who live in this region, Dasha receives just ten pence a month as compensation for the risk of living in an officially contaminated space. Echoing statements made by many research participants (and highlighted in the previous chapter), this paltry compensation was the cause of much anger. As she explained:

> *"If I saw the president I would ask him 'Are you laughing at us?' We are simple people, but they are just laughing – it is a shame."*

Dasha's frustration at the government accompanied a narrative of loss and bereavement. She explained how she had to rely upon donations from friends and neighbours to help pay for the funeral costs of her two sons, before saying how one day she would like to "*make a proper gravestone for my sons, but at the moment they just have a printed photograph and a wooden cross*." A month earlier at an interview at the UN headquarters in central Kyiv, the head of the 'Chernobyl Recovery and Development Programme'[108] (CDRP) reminded me that the UNDP's key slogan for Chernobyl is "*Poverty not radiation*", highlighting how the UN considers the real problem people face to not be nuclear contamination but economic marginalization. This approach from a governance perspective makes sense – the health debates surrounding Chernobyl will continue to be fought over and contested within expert groups and lay communities alike, whereas the lack of economic investment in Chernobyl affected regions is undeniable, with widespread unemployment and a visibly neglected infrastructure. Even if Dasha, for example, had wanted to play her accordion in the local 'House of Culture' she would first have to rebuild its roof and remove the vegetation that grows through its abandoned concrete frame; like many community buildings, roads, and infrastructure near the Chernobyl Exclusion Zone, the House of Culture has decayed and collapsed in the years after Soviet collapse. While lack of investment in infrastructure is a problem throughout Ukraine in general due to

[107] The nuclear reactors at Chernobyl that were not destroyed in 1986 meltdown continued producing electricity in post-Independence Ukraine until 2000. Fourteen years after the disaster, pressure from the EU and the promise to invest in new power stations in West Ukraine, as well as in the construction of the 'New Safe Confinement', led to the complete closure of energy production at the Chernobyl site. The power cables near Dasha's house can be traced on satellite images stretching north-east across the abandoned *kolkhozy* and forests of the Exclusion Zone, towards the former nuclear power station.

[108] The CDRP is an offshoot of the United Nations Development Programme and has been running since 2003.

post-Soviet 'transition', the Chernobyl region is especially blighted by its peripheral location and laws that restrict economic investment in Chernobyl-affected Zones. As the head of the CDRP explained: '*in the Second Zone you cannot invest in renovation – even in Schools or roads, any investment from the state budget*'. To dismiss radiation as a problem outright, however, at least to those who live with Chernobyl, would at best be considered a misunderstanding and at worst an insult. Sat in Dasha's room, things did not appear so straightforward.

"This cat loved my son very much" said Dasha, visibly upset:

> *"and when my son died the cat jumped on the coffin. He did not want to let him go. You can survive many things, but you can't survive the deaths of your sons."*

Like many others, Dasha attributes the Chernobyl nuclear disaster directly to the deaths of members of her family. Taking them from a shelf next to a photograph of her late husband, she shows me portraits of her children who both died in their early twenties. She considers exposure to nuclear radiation to be responsible for killing her sons, who died at the age of 23 and 24:

> *'They died in the same year, in 2006. There were four months between their deaths. It was from radiation from Chernobyl. They died after they served in the army. They both died from cancer of the 'white blood' [Leukaemia]'*

In the photographs she handed me, her sons looked stern. They were wearing Ukrainian military uniforms from their compulsory national service. They looked similar, perhaps, to the Soviet soldiers who had warned Dasha in 1986 about the contamination of her '*dirt*'-covered sons. Except, she explained, the Soviet soldiers who spoke to her were wearing gas masks and holding Geiger counters, in a time before new political and nuclear borders would redefine Ukraine, and re-cast the lives of many people such as Dasha.



Figure 40: *Dasha holding photographs (different from ones described above) - one of a son (left) and the other of her late husband (right). Out of shot, I am holding a photograph of her other son that she handed me to look at. Photograph by Alexey Furman.*

6.3 *Loss, Illness, and Bereavement*

Her story is not an isolated example. Walk through any of the villages that surround the Chernobyl Exclusion Zone and similar narratives emerge. Many participants cited Chernobyl radiation as the cause of death and suffering, and would often follow this with stories of bereavement in their family

or friendship groups. In communities near Chernobyl it is almost universally accepted that the nuclear accident is responsible for death on a massive scale, and over the course of the research Chernobyl was blamed countless times for a wide variety of specific and general health complaints, highlighting the danger that people attribute to radiation (see **Figure 41**):

Specific health problems:	**General health problems:**
Heart Attacks / Heart Disease	Feeling weak
Cancer (various)	Headaches
Leukaemia	"my legs ache" (very common)
Thyroid cancer (common complaint)	"Women's diseases"
Hearing loss	"bones hurt"
High / Low Blood pressure	Feeling sick (in general)
Eye ulcers	Weight gain
Diabetes	Alcoholism[109]
Dementia	Feeling stressed

Figure 41: *A table showing the 'contested illnesses' (Cable et al 2008, 380) of Chernobyl. A popular epidemiology of Chernobyl listing health problems that participants attributed to the nuclear disaster.*

To illustrate this further, the following quotes are from people who have experienced family bereavement and associate this with Chernobyl; stories of legs and arms and thyroid glands and cancers:

[109] Ironically, increased alcoholism is blamed on Chernobyl as a social consequence, but drinking vodka and wine is also often cited by people as 'protection' from exposure to radiation. Former liquidators described being offered vodka by their superiors before they conducted particularly dangerous tasks in the Zone, and several people described how alcohol helps build up a resistance to the effects of radiation. Following Douglas (1966), this culturally constructed idea of radiation resistance could be said to reinforce gender norms of Ukraine's patriarchal society, as vodka drinking is often linked with performances of masculinity. After the nuclear disaster many men suffered the emasculation of having their traditional role as 'protector' and 'provider' stripped from them due to the inability to control widespread environmental devastation, as well as post-socialist transition discussed elsewhere (Levant et al 2003, Kay 2006). Alcohol drinking near Chernobyl thus becomes normalised and culturally (re)enforced due to its perceived heath benefits.

"My husband died because of Chernobyl, my daughter in-law and my daughter have all died. My husband broke his arm and then ***he got cancer****. My daughter in law worked as a medic and hurt her leg, but there was cancer in it. They tried to operate on her but it was too late. And my daughter died when she was 35,* ***she had cancer of the womb****. Now I have three grandchildren, and they are now orphans, because my daughter died and my daughter in-law died."*

"my son died four years ago when he was 23, he was ***an invalid because of Chernobyl****. You can't forget it*"

"After working in Chernobyl I went to hospital here and in Kyiv, to the institute of radiology. And now it is easier to say what does not hurt, that what does"

*'Everyone is sick here. Everyone. Adults, children. Like children with their eyes…****before we had no problem with children's eyesight*** *– but now for some reason many children suffer. Eyesight, and blood pressure'*

"Chernobyl took from us the dearest we had"

"There is a lot of thyroid cancer, and many women up to the age of 45 or 50 have to have their wombs removed. ***The womb is taken away because of the cancer****. Half of women under 50. And it has affected my family.* ***My brother died from cancer****."*

Finally, the following quotation comes from a maternity nurse who works in Orane village, 5km from the Exclusion Zone border. Like many in this region, she also attributes Chernobyl as the cause of a variety of illnesses, especially in children, who she comes into contact with during her work:

"I have worked here for five years. Cancers are really widespread. Normally old people get them, but now children two years old have cancer. We had two occasions of a birth mark but it was actually a cancer, two years old. Six months and two months old. Just babies. We have a boy who is just ten years and he had a problem. Old people have a problem with memory, and problems with their hearts. With

children it is definitely because of Chernobyl, earlier it was really very rare even in Kyiv. Maybe one child in hundreds, but here we already have several children. And ***I think this is from Chernobyl because we are close to the Zone****. These two kids had operations in Kyiv and they were successful, but one had to have a second operation..."*



Figure 42: *A participant shows me a photograph of her late husband who worked as a liquidator and, in her view, died as a result of exposure to high levels of radiation. Photograph by Thom Davies.*

Susan Sontag reminds us that 'photography has kept close company with death' (Sontag 2003, 21) and often during such interviews participants would produce a photograph of a deceased member of their family; sons, daughters, husbands, siblings. Their faces would stare defiantly back like icons of nuclear tragedy or witnesses in absentia – unable to be present due to the very catastrophe I was researching. Accompanied by the stories of loss and bereavement that followed, the images became visual testament to the invisible risks of radiation. The photographs of deceased relatives would be handed over like documents at passport control [**Figure 42**], unfolded from wallets or taken down

from the walls of kitchens and bedrooms. In the absence of categorical *proof* of a link to Chernobyl, or adequate welfare protection and recognition, the photographs became – to those who presented them (and to my situated and affected self) - 'evidence' of sorts; a demonstration of loss and grief that was undeniable, even if the cause of that anguish was still scientifically debated.

It was at the annual commemorative services to Chernobyl where the full emotive force of these family portraits emerged. Seen outside of their 'proper' domestic place of the home (Rose 2003) – the meaning of these family photographs changed [see **Figure 43**]. Held lovingly by their relatives, the photographs became public declarations of loss; each one an 'explosion of the private into the public' (Barthes 1980), blurring the borders between intimate and public space, and in doing so reinforcing the personal tragedy of a (contested) national event.[110]



Figure 43: *A mother holds a photograph of her son at the Chernobyl memorial in Kyiv during the 25th anniversary commemoration of the nuclear accident. Along with liquidator veterans and evacuees,*

[110] Portions of this chapter have been previously published in Davies (2013)

the event was attended by several hundred relatives of people killed by Chernobyl most of whom were holding photographs. Photograph by Thom Davies.

It is beyond the scope of this thesis to make claims about the medical or epidemiological significance of the persistent accounts of biological damage and mortality that I encountered during this research; the health consequences of nuclear disasters such as Chernobyl and Fukushima will continue to be debated by more qualified scholars elsewhere (see IAEA 2011 and Yablokov at al 2009 for divergent accounts). What is striking however is the persistence of such accounts and the relationship they have with other, seemingly incongruous behaviours and practices that can be witnessed around Chernobyl, where a duality of apparently divergent risk understandings are enacted.

It is undeniable that all populations are susceptible to cancers and the other diseases mentioned [Table in Figure 6.5], and it is even possible to simply dismiss such statements as evidence of 'radiophobia' (Pastel 2002, 134; Falkof 2013, 931) or a 'victim mentality' (WHO/IAEA/UNDP 2005) that Chernobyl citizens have previously been accused of. However these descriptions of harm that were repeated in interviews time and again, point to the central importance of the disaster in framing people's lives, creating a binary in the narratives of those who live with Chernobyl, of before and after the nuclear accident (Petryna 1995) and also referencing a complex relationship with risk, where the landscape both provides (food, agency, home) and causes harm. These narratives of loss, illness and bereavement also put into sharp relief the risky practices and informal risk understandings that simultaneously take place.

Since the earliest days of risk perception research (see Slovic 1987), academics have recognised that people dread disasters that involve exposure to toxic materials due to their invisible and potentially catastrophic health effects – with the Chernobyl disaster repeatedly cited as the paradigmatic example of such a threat (Danzer & Danzer 2014). Famously, Ulrich Beck for example used Chernobyl as an exemplary case in his polemic 'Risk Society' (1992). Beck argued that new technological hazards such as Chernobyl, which are 'global [in] character' (Beck 1987, 155), would cause a fundamental shake-up of society, altering societal structures such as class, as we enter a more 'reflexive' post-

industrial age.[111] He based this on the idea that some groups would be able to deal with technological risks better than others. He argued that since entering the postmodern technological age, new layers of manufactured risk have become a further set of potential threats that we all have to deal with, yet those without the financial, cultural and social capital to handle these new risks are hit the hardest. However 'global' this risk is, it is worth emphasising that these risks are understood 'locally' and in confluence with other risks of everyday life: poverty *and* radiation coexist. As others have found, risk understandings are rarely uncomplicated or homogeneous (Parkhill et al 2009).

This research reveals that far from a simple picture of people fearing the environmental hazards of Chernobyl, a more nuanced and complicated risk understanding has emerged; one based upon an embedded sense of place attachment and the necessity of survival that place guarantees. Chernobyl is considered dangerous, yet many behaviours people adopt could potentially expose them to greater environmental harm.

In this sense, the sea of photographs seen at the memorial ceremonies, and the portraits I held in bedrooms and kitchens around the Exclusion Zone were a paradox of sorts. The photographs or rather the stories of loss that surrounded them - exist in dissonance with widespread informal and risky behaviours that I had witnessed. A primary example of the discord between value and action is the apparent conflict between the view that Chernobyl is highly dangerous, and an even stronger reluctance to move away from this contaminated space. This will be explored in detail in the following section.

6.4 '*Where would I go?*' Rejecting welfare and embracing place

Aside from the tiny food compensation described in the previous chapter, another key welfare provision available for Chernobyl affected citizens is the option to be resettled in non-contaminated space. Beyond the 350,000 forcibly displaced people who were made to leave the 'Zone of Mandatory resettlement' (Ministry of Emergencies of Ukraine 2012), those who still live in areas of high contamination outside the Exclusion Zone in Ukraine have – at least in theory – the option of

[111] For a useful critique of Beck see Elliot (2002),

state-assisted voluntarily relocation. In reality, however, many people reject this welfare provision. This can only partly be explained by the long waiting lists involved in securing alternative housing, which are synonymous with welfare systems inherited from the USSR (Gentile & Sjöberg 2013).

Nastia (30s), a participant who lives 5km from the nuclear border fence, described how her family signed up for re-housing immediately after the disaster when she was still a child. Her mother was scared, she explained, that Nastia, her brother and older sister needed to be evacuated. Indeed Nastia's brother would die from thyroid cancer a few years later. Nastia would herself undergo treatment for the same disease in her early childhood, she told me, while pointing at her throat. A generation later, her family is still on the relocation waiting list. Despite this, she explained that her family has no intention of moving, even if they are offered a place:

> *"So now I am an adult and I don't need to move! But this is the truth. We are still in the line. We are on the list number six hundred and so on. The State builds flats every year for 30 families, so you can imagine how long we would have to wait."*

Despite this lack of provision[112], and unlike food compensation, very few participants complained at the apparent lack of housing welfare. Simply put, very few people wish to leave. In 2006 there were 15,146 families on the waiting list for transfer from contaminated areas from a potential 600,000 people who qualified (MOE 2006)[113]. It is possible however, that many of those still in line for relocation would reject this welfare if it was actually offered, much as Nastia's family would. Of those interviewed, Nastia's household were the only family who had signed up for relocation welfare. When asked if they wanted to move away, the common response was '*Where would I go?*' which at first implies it is the lack of alternative housing that stops people from leaving this officially toxic landscape. On researching further though, the reply '*Where would I go?*' holds a deeper meaning - one relating to place attachment, corresponding to Heidegger's notion 'dwelling' (1971), which emphasises how 'people are always *embedded* in the world' (Cloke & Jones 2001, 651 emphasis

[112] The Ministry of Emergencies admit that funds for such welfare are 'insufficient' (MOE 2011, 272)
[113] In the twenty years following the accident in 1986, 14,171 families have been rehoused from Zones three and four (MOE 2006).

added). This extends beyond the mere availability of alternative housing. For Heidegger there is a distinction between a place as 'shelter' (functional, material) and a place to 'dwell' (symbolic, emotional) – evoking a deeper, albeit 'romantic and nostalgic' (Cresswell 2004, 22) notion, connected to the ephemeral idea of 'home'. The state may '*build flats every year*' but these spaces, for Nastia and her family, could never be places to dwell, where place and landscape hold a symbolic value, even in risky environments (Day 2007). For many, the thought of leaving the familiarity of home – despite acknowledging that nuclear radiation is harmful - is considered a risk too far.

To make further sense of the constructed and complex understandings of nuclear risk, it is important to take a broad view of people's biographies and consider the other personal 'event narratives' (Patterson 2013, 33) that contribute to understandings of Chernobyl. This follows Henwood et al (2011) who advocate analysing biographies and narratives to research people's responses to risk. Not only can 'biographical experiences, dynamically unfolding through space and time...be interrupted by risk events' (ibid, 251), these life narratives, memories and experiences can also shape the way risks are understood and interpreted.

6.5 'This is War without bullets': Constructing Chernobyl risk understandings through comparisons to other events, memories, and narratives

A key way that participants make sense of the environmental risks of Chernobyl is through comparing it to other events, as well as personal narratives and memory. To illustrate this with a contemporary example, the week after the Fukushima nuclear accident struck Japan in March 2011, I was discussing the prospect of evacuation with an elderly lady in Karpilivka village, adjacent to the Chernobyl Exclusion Zone. I was interested if she had any advice for people who were currently suffering in Japan. It was revealing that her main recommendation was that people who live near Fukushima should not let themselves be evacuated:

> *"What I would advise them is to not leave their place, because people who have left have died. If I leave here then people will come and take all my things, so I am going to live here and to die here."*

A few days earlier another participant had asked me, after being told that I was researching Chernobyl: *'Did you hear what has happened in Japan?'* At this stage I had little idea of the unfolding situation at Fukushima, other than a few glimpses via the car radio, '*Yes, it sounds bad'* I replied. Before I could ask if she had any advice for people in Japan she continued '*The people, if they are going to move they will die quickly'.* When I enquired further she explained:

> *"If they are told to move they should move, but they should know that they will definitely suffer from stress from missing their own homes"*

It was striking that many people considered the idea of being evacuated as a dangerous prospect - more risky even than staying and living in a contaminated space. The comparison between these two distinct events was not the first time that those who live in the 'Zone of Guaranteed Voluntary Resettlement' had juxtaposed divergent events and situations to make sense of the risks of nuclear hazard. For elderly interviewees especially, these narratives of threatened displacement should not be viewed in isolation. Many remember Chernobyl as but one of a series of relatively recent anthropologically significant events - part of a larger set of recollections that stretch back through Soviet and post-Soviet space through personal memory and the 're-memory' of family lineage (Morrison 1987).

The threat of Chernobyl deportation becomes part of a brutal narrative that includes Ukraine's pre-war famine, the horrors of the Gulag, the Great Patriotic War, Nazi occupation, the collapse of the USSR, and the post-socialist turmoil that followed. As Irwin et al (1999) suggest in their research on industrial hazards, such 'narratives do not simply provide local colour' but 'play an important role in the construction of lay understandings of risk', and so too do the memories of past events help those impacted by Chernobyl to discursively develop local risk understandings of the present.

As catastrophic as Chernobyl was—and remains to this day—it is not an isolated event in people's memories but a continuation of trauma that 'references bodies as both subjects and objects of state power' (Petryna 2002, 64). In conversations with participants about Chernobyl, previous life experiences and (inherited) memories were discussed in a cheek-by-jowl comparison; one event or

distressing narrative compared to the next, in much the same way that experiences of Chernobyl were used to make sense of Fukushima. For example elderly and middle-aged participants sometimes conflated the collapse of the USSR with the catastrophe at Chernobyl that occurred several years earlier[114] - the two major events converging into one trauma that caused uncertainty and a multitude of nuclear and non-nuclear risks. One woman for example, when asked about Chernobyl, responded instead by bemoaning the collapse of the Soviet Union: "*Before the USSR ended you could go and complain to the district administrators"* she said, *"whereas today nobody is interested in anyone*." She cited the lack of state support that has characterized post-socialism but for many can also be traced back to the nuclear accident, creating an unbroken compound of state-failure:

> *'We got more pension during Soviet times, well my parents did. It is harder now. We have only a tiny amount of compensation for Chernobyl. You can see how many fields are empty here after the Chernobyl tragedy and there are no collective farms since the end of the USSR'*

For some, stories of 'the tragedy' would merge into nostalgic laments about the loss of local collective farms, before flowing back to talk about the health impacts of radiation. For others who live near Chernobyl, however, the difference between the two events could not be clearer. For ex-liquidators such as Viktor - introduced in the previous chapter - Chernobyl stood alone as a key marker in his life:

> *'Of course, the collapse of the USSR has had a great impact, but it is not so great compared with Chernobyl, because the USSR is something that is now invisible, it's just a concept, whereas Chernobyl is everything you can touch, that you can see, that you can feel'*

For Viktor it is the ever-present and ethereal nature of radiation that marks Chernobyl out as a distinct and important part of his life. As invisible as the hazards from Chernobyl may be, they are more than just an idea, but are a lived experience – with the potential to encompass '*everything you touch'*. The

[114] Abbott et al (2006) found similar conflation between the two events during qualitative research in Chernobyl affected regions of Russia, Belarus and Ukraine.

former Soviet Union meanwhile, despite the visibility of its decaying monuments [**Figure 44**] and broken infrastructure has disappeared into the irrelevance of being *'just a concept*'.



Figure 44: *Just a concept? A Soviet War memorial in a village near Chernobyl. The participant, who lives in this village, partially blocks the lens with his finger. Photographed by participant.*

The oldest interviewees made connections between their memories of the Second World War and Chernobyl, comparing the risks they faced during the war with the risks of radiation. For example the following quote comes from a group-discussion with four pensioners, three of whom were children during the war and one of whom fought as a partisan when she was a teenager. Interestingly, in their analysis of Chernobyl in its biographical light, their opinion contrasts to Viktor's, as they downplay the threat from Chernobyl due to its intangibility:

> *'During the war you could see a plane, and then you could hear and see bombs and casualties. And here, we have not seen anything, so we are not afraid as we were during the war...* [others agreeing]

Very interesting!

[Another participant:] *...When you see a plane with a bomb you realise you have to hide because you are scared. And here, well there was an explosion, OK, but we don't see any casualties immediately, so…'* [others nodding in agreement]



Figure 44.1: An overgrown Soviet war memorial marking the site of a battle during the Great Patriotic War. The memorial is a a few minutes drive from the Exclusion Zone fence. Photograph by Alexey Furman.

By invoking these two historic events, Chernobyl becomes normalised in comparison with the horrors of war. Interestingly in this group discussion, the unseen nature of radiation is cited as a reason why the local nuclear hazard of Chernobyl is considered comparatively less threatening, which counters the usual findings of risk scholars, who view the *invisibility* of modern toxic hazards as the cause of widespread fear (Slovic et al 1980; Beck 1986; Slovic 1987; Kuchinskaya 2014).

The view from elderly participants, that Chernobyl risks pale when compared to war, is not a universally shared opinion by people of that generation. For example another war veteran who described narrowly avoiding being shot by a German soldier who suspected her of helping the local resistance militia, related that experience to Chernobyl, saying – pointedly - '*At least when the Nazis were in my village you could see them*'. Echoing Viktor and many risk scholars (Kuchinskaya 2014), for this veteran it is the invisibility of radioactivity that makes it an ever-present danger. Indeed others referenced the Great Patriotic War to emphasise how catastrophic and disruptive Chernobyl was. '*This is War without War'* explained one participant as she reminisced about seeing the mass of evacuees and military after the disaster. Another respondent, the former Mayor of Ivakhiv City explained:

> *'There were over 500,000 military, there was lots of rotations of battalions. This is a war without bullets. The young generation grows but we must help them'*

Several elderly respondents compared the post-disaster military presence, as well as the mass confusion and displacement of population, to the chaos of war.[115] For example, the following participant was a young child when the Nazis occupied her village:

> *'It was a bigger nightmare than war... we were told that Chernobyl had exploded and they were crying, yelling and screaming. We did not know that we would be going to another place – we thought it would only be for two or three days. [My father] said he had been in the Second World War but he had never seen such a nightmare'*

Others recounted memories of tragedy that linked Chernobyl with the war, for example a woman who lives on the edge of the Exclusion Zone explained how several years after the accident there was a

[115] The 'Chernobyl as war' (Phillips 2009, 164) trope is also summoned in the official memorialisation of Chernobyl. From the Chernobyl clean-up workers being sometimes referred to as *Afgantsy Chernobylia* 'Afghans of Chernobyl' (Arndt 2012) in reference to the decade-long Soviet-Afghan War, to the sounds of the military bands that play at the Chernobyl commemorations and the laying of wreaths - the correlation between War remembrance and the official performances of Chernobyl at memorials shows a clear correspondence.

huge forest fire near her village as forest managers and fire-fighters could not enter the polluted territory to control the fire:

> *'I was praying for rain. The plane dumping water couldn't stop it, the firefighters could not stop it. There were large bangs from bombs from the War. Our village was taken seven separate times during the war. Two sides, back and forth. And there were lot of mines and grenades in the ground, and when they caught on fire they started to explode. If you want to go and see you can go and see'*[116]

The same participant described how it felt when she was first forbidden from entering the forests of the Exclusion Zone, where she had always played as a child, including on discarded tanks from the war: '*we were so depressed it was like the end of the world, the end of life'*.

For those exposed to the dangers of Chernobyl, these memories are more than mere reminiscences: they make 'more transparent and predictable the machinations of state power by which family members...were victimized' (Petryna 2002, 64). Memory becomes a shared resource that helps people make sense of the uncertainties of Chernobyl, and helps develop communal risk understandings that are inseparable from other narratives and personal experiences (Botterill & Mazur 2004). Attitudes to risk and place are guided and shaped in a confluence with past experiences and inherited memories, demonstrating how risk understandings emerge just as much through the subjections of the past, as through the calculations of the here-and-now. 'Looking back to the past, linking the present to the past, and imagining what might happen in the future' (Henwood 2011, 259) are ways that narrative and memory have helped shape risk understandings of Chernobyl.

6.6 Constructing Chernobyl risk understandings through comparisons to evacuees

Often participants compared their situation with those who used to live a few kilometres north inside the Zone, and were forced to abandon their homes. Interviewees told stories of the chaos and crying after the disaster; the countless buses packed with evacuees, and the rumours and whispered mutterings that they too might suffer that same fate. Many described temporarily looking after

[116] I was invited several times by participants to enter the Exclusion Zone.

displaced evacuees, who lodged with them for days and weeks before they too were sent on to temporary camps and half-built apartments scattered across distant parts of the USSR. Interviews with evacuees testified to this, with stressful stories of pan-Slavic migrations from one summer camp to the next, sometimes via Belarus, Moscow and others parts of the Soviet Union. When the evacuees eventually arrived at their allotted location they would often be ostracised by the local population and socially excluded as abject 'others' - viewed as contagious '*Chernobyl Hedgehogs'* who were seen to have jumped ahead in the welfare queue for new housing.[117] One participant who was transferred from his home in the Exclusion Zone to a suburb of Kyiv described how the leather cover of his front door was repeatedly slashed by disgruntled neighbours when he first arrived. Another evacuee who I interviewed in West Ukraine, now lives 500 km from her old home in the abandoned city of Pripyat. She described how she missed her previous place terribly, and would do anything to go back:

> *'If I had a chance to live in Pripyat right now I would go on foot back to my own hometown. I would go on foot . . .'*

Stories like this have fed back to those who live near Chernobyl and the idea of *voluntarily* going through with such resettlement is considered a bigger risk than staying put, despite the simultaneously held opinion that Chernobyl is a highly dangerous hazard, even able to kill people they know and love.

[117] For example immediately after the accident the government made 7500 apartments in Kyiv available, as well as 500 in the city of Chernigiv (MOE 2011b). This was nowhere near enough to stem the tide of ecological exiles from the Exclusion Zone, but it certainly angered many locals, some of whom had been waiting for years for a new flat, "sometimes for a decade or more" (Tykhyy 2006, 216)



Figure 45: *A photograph given to me by a participant (right) who is pictured in 1988 with her daughter sitting outside their small prefabricated house in a hastily built 'compact resettlement site' (MOE 2008, 47) for Chernobyl evacuees near Kolonschyna village, 40km West of Kyiv. She has since moved back to live on the border of the Exclusion Zone near her old home, which is abandoned inside the Zone. She cited dislocation from her social network as well as how 'the roof leaked all the time' as reasons for return-migration.*

"*You should see the cemeteries in those villages, they are like cities*" said one respondent who lives by the Exclusion Zone, not referring to areas near Chernobyl, but to the places where forced-evacuees had been sent to live after the accident. Many believe that numerous evacuees have died because they were forced to leave their homeland. For example one participant who lives to the west of the Exclusion Zone suggested that *"All of those who were evacuated are dead"*, similarly another interviewee who lives just south of the nuclear border fence commented how *"Most of the people who moved away have just died",* expressing the dominant view held by people who live on territory officially contaminated by Chernobyl. These were common views expressed by interviewees, who

had come so close to being evacuated themselves. Participants in several villages had even been told en masse to pack their belongings to join one of the thousands of buses that transported the 'environmental refugees' (de-Hinnawi 1985, 4) away from nuclear territory, before being informed [as mentioned in Chapter 4] that they were allowed to stay, due to a renegotiated 'nuclearity' (Hecht 2012). The term 'environmental refugee' is relevant to the case of Chernobyl, and has been most notably used by Essam el-Hinnawi (1985) to describe:

> 'people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardise their existence and/or seriously affected the quality of their life' (de-Hinnawi 1985, 4)

The term environmental refugee can also be 'used to underscore a lack of agency' (Blitz 2011, 436) and for many people who narrowly avoided displacement, the prospect of losing the agency afforded to them through place (including through social networks and informal activities) is a key reason why they are convinced that moving away would be a bigger risk to their health. For many participants who live near Chernobyl, it is the idea of forced displacement that threatens to 'jeopardise their existence and seriously affect the quality of their life'(de-Hinnawi 1985, 4). Staying put or being immobile is considered approximating to autonomy and self-sufficiency. This rejects the commonly held association of mobility with freedom. It is essential that the 'disciplined mobilization' (Pecker 2003, 143 in Moran et al 2012, 448) of state enforced environmental displacement is avoided, so that people can maintain the security of place. Though 'mobility is a tool of governmentality' (Moran et al 2012, 448), for those who live near Chernobyl, immobility and fixity becomes synonymous with survival.

6.7 Death by (forced) Mobility

For many participants, old or young, the perceived plight of the evacuated population with their "*cemeteries the size of cities*" was often used as a justification for why living so near to Chernobyl is an acceptable risk; the alternative option of relocation was viewed as much worse. People would talk

about how the Chernobyl evacuees were no longer alive because they had been removed from their homes, the radiation itself being an afterthought. Interviewees would often emphasise that it was not necessarily nuclear exposure that had killed the evacuated, but dislocation itself:

> *"**They didn't die from radiation,** not from diseases, but because they were living here for a long time, and they left their homeland. They had **a great stress from moving**"*
>
> *"Most of the people that have moved have died, and most of the people who stayed here are still alive. **They died from moving**, not from the radiation."*
>
> *"The nearest village after the fence were told to leave. They went to the cities. Some people died after they went from that village. Most of them want to be buried here. Most of them have died…Most **people did not die because of radiation, but because they moved**"*

For these participants it was the act of moving away from home, whether forced or voluntary that was responsible for causing the perceived deaths of evacuees. In another example, a participant from Strakholissya village, at the South East corner of the Exclusion Zone, agreed with the sentiment that *"most of them died"*, but saw things slightly differently, believing that evacuation was a catalyst for radiation-related health issues. "*They died from the radiation but died faster than they would have if they had stayed*" she explained, maintaining that forcibly mobilizing the evacuees had increased the danger posed by radiation and not reduced it. She suggested that if the evacuees had been allowed to stay with the landscape, as she had done in Strakholissya village, then they would have been better off. Indeed the views of participants - nuanced and individual as they were - are variations on the same theme: that staying put is less dangerous.

This was expressed in pseudo-scientific ways, for example describing how living geographically close to Chernobyl is *less* radioactive than elsewhere, as if they lived in the eye of a storm. *'It all blew over the sky after the explosion and did not fall down immediately'* said one participant, as he fished at the

edge of the riverside, *'It spread over some kilometres. Only after that did it fall down to the ground. It's physics!'*

When I asked another participant who lives near the edge of the Zone why she thought people who evacuated had died (including her friend), compared to the comparative survival of those who stayed, she said *"we just absorb it".* She went on to suggest that her family had become *part* of the radiated landscape itself, embodying the nuclear risks, with no separation between body and polluted environment: *"An atom consists of different parts"* she explained *"and we are just one part of this cell, of this radiation level. We are one and the same!"* Radiation for her had become a normalised part of everyday life - not just acknowledged but fully accepted into her relationship with place. For others too this was the case, with another participant explaining how she he been so continually exposed to radiation *"even 20 years before the catastrophe"*[118] that she had reached a kind of 'saturation' point, where no further pollution could do her any harm:

> *"Everything that we should absorb, we already have absorbed it. Everything that we possibly can."*

This participant and her husband had actually *returned* to their village from which they were evacuated

after the disaster, to live (semi)illegally inside the Exclusion Zone itself. Several hundred people known as *samosely* 'self-settlers' [самосёлы] or *partizany* 'partisans' [партизаны][119] continue to live inside the Exclusion Zone and rely – perhaps more than most - upon informal nuclear risk understandings as part of their day to day lives.

6.8 'Adapting' to radiation

Some respondents suggested that those who had stayed or returned had evolved a tolerance or 'adapted' [адаптированный] to radiation. These participants still believed that moving away was a

[118] It was not uncommon for participants to describe how they believed they had been exposed to radiation many years before the 1986 meltdown.

[119] *Samosely* and *Partizany* were used interchangeably by research participants to refer to those who returned to live in the Zone. During WW2 partisans or resistance fighters would hide-out in forested areas, including in this region, as they fought against Nazi occupation.

dangerous prospect, but highlighted the importance of staying in the same place in order to 'get used' to nuclear contamination. This framing of risk separated those who had stayed from those who had decided – or had been forced – to leave:

> *"Its been 25 years now so **we are now used to it**. In Japan it is bad now but here we are used to it,*[120] ***we are adapted.*** *We are 'Chernobyl hedgehogs'*[121]*."*
>
> *"**We are used to the radiation**"*
>
> *"So now **we are used to this air**. All chemicals and bad stuff goes into the air, the dust and everything goes everywhere – and we have got used to it. People who left were afraid of radiation and they left".*
>
> *"We are used to it, **we have adapted to it**. Like a cat. We don't care about it at all. Those people who evacuated from Chernobyl have already died but we are still living here. I don't know why they have died. Maybe they went to the clean zone after being in the dirty zone, but we are still living here and **we are used to it**. We still live in the dirty zone, we did not want to move so maybe that's why our health is fine. We have adapted to it. **We have a kind of immunity to this**..."*

For some participants, not only had those who stayed living in the 'dirty zone' survived, they had 'adapted' to their toxic environment. This framing emphasises the agency of people who stayed put, who know their landscape intimately, and embody the landscape and its risks. This discourse of 'adaptation' to difficult circumstances completely contradicts policy statements from the *Ministry of Emergencies* who suggest that "[t]he majority of victims are still in a state of social and psychological deadaptation" (MOE 2006, 66). Far from it, participants suggested they had adapted (even in a physiological sense) to the precarious materiality of nuclear hazards by getting '*used to this air'* with

[120] This interview took place a week after the Fukushima-Diiachi nuclear accident in 2011, when the situation in Japan was still unfolding and was being portrayed in Ukrainian media (and elsewhere) as the 'Chernobyl of the East'.

[121] 'Chernobyl Hedgehog' is a derogatory nickname for people who have been affected by Chernobyl, a term often used by host communities to refer to evacuees in a disparaging way. Here, it was used by a young mother who lives on the edge of the Zone in a self-deprecating, humorous way.

its '*chemicals and bad stuff*'. They also suggest they have emotionally adapted, contrasting their resilience and stoic attitude towards nuclear risk, with evacuees who '*were afraid of radiation'* and had (in their view) not survived. This framing of risk promotes the idea of a certain prowess or status in the ability to cope with a landscape that many others consider to be a 'stigmatised place' (Bush et al 2001, 47; Wakefield & Mullen 2005, 301), by emphasising a tolerance to radiation that others do not possess.

Previous research about the cultural construction of risk suggests that risk understandings promote and emphasise the values of the society in which they are constructed (Douglas & Wildavski 1983; Rayner 1992), and in these statements we can see a similar pattern emerge. The 'othering' of evacuees for example, and framing them as more biologically weak, damaged or simply '*dead*', helps endorse the idea that those who stayed have made the correct decision to reject relocation welfare. Furthermore, the idea that people have developed an acceptance to radiation and are able to '*just absorb it'* adds cultural value to their group identity, setting them apart as a tough, resourceful and resilient community. For marginalized groups who have very little to show for Ukraine's 'transition' into the market economy, the ability to thrive in environmentally hostile circumstances is a point of great pride. Simply put, this risk construction promotes the idea that communities who live near Chernobyl are safe. In day to day life, being able to not '*care about it at all'* is essential in order to avoid the paralysis of fear from living with an environmental hazard.

It is difficult to overstate that these opinions are *not* based on a rejection of the idea that radiation is harmful: many of the same interviewees cited Chernobyl as deadly, and even had personal stories of Chernobyl-related tragedy to testify to this. As a case in point, the same interviewee (above) who described his '*kind of immunity*' to radiation went on to express his sadness at the loss of so many of his friends and colleagues who died because of Chernobyl:

> *"...Sometimes we talk about Chernobyl. Altogether. I worked as a driver for 33 years. I was delivering bread. A lot of my friends have died. I'm sorry* [he starts crying]. *Four days passed after the accident and people were only then told that,*

you know, the reactor had... [crying]*...we did not know anything at the very beginning* [crying]."

Wanting to stay living in this environmentally dangerous landscape is not a rejection of the idea that Chernobyl is deadly, but demonstrates how important place is to marginalised communities –as well as the simple yet salient point that environmental risk understandings are highly complicated (Dash & Galdwin 2007) and often heterogeneous (Parkhill et al 2009). Not wishing to leave an anti-therapeutic landscape of risk such as Chernobyl has parallels with previous research in highly marginalized areas of the former Soviet Union, such as Magadan in Russia's Far East. Here, Gulag survivors (another socially and culturally stigmatised group) faced extreme climatic and economic conditions yet refused to be relocated to more affluent and economically 'logical' locations due to the risk of severing their links with the place, as well as the material and 'symbolic support' of social networks (Kay 2012, 69) that these marginalised groups depended upon for survival (Round 2006). Indeed an established body of work on post-socialist space has emerged, that testifies to the importance that place holds for the continuation of marginalised communities (Moran 2001; Pallot & Nefedova 2003a, 2003b; Wegren et al 2008; for a non post-Soviet example see Sampson & Goodrich 2005).

6.9 *Beyond Fatalism*

Some commentors might dismiss the desire to stay living with a risky environment such as Chernobyl as evidence of fatalism, such as Ukraine's *Ministry of Emergencies* who describe people affected by the nuclear disaster as living in 'a state of fatality' (2006, 65). Other scholars, too, such as Abbott et al (2006) in their research in Chernobyl-affected regions in Russia, Belarus, and Ukraine found expressions of resignation and fatalism from their focus groups. While the research for this thesis also found evidence of this attitude (as shown in the next quotations), this apparent acquiescence towards Chernobyl health risks hides another layer of meaning: a pragmatic attitude that privileges the agency that comes from staying with a known landscape:

"*We don't want to be always afraid. If we die, ok we die, but we want to have some happiness from this life*" explained Nastia, when describing why her family would turn down the offer of relocation if the state did find alternative housing: "*we just want to enjoy this life as it is, we die but we smile*". Another participant offered the view that:

> *'You have no choice you will die anyway, so you may as well die and live somewhere that you know. Where you are born you should die. I was born here.'*

While Nastia's remark that *'We die but we smile'* is strongly fatalistic in tone, it also conveys an optimism that comes from the knowledge that it is possible, despite environmental and economic risk concerns, to survive in this landscape. The second quotation from an elderly lady who lives in Novi Sakoli village (just south of the Exclusion Zone border) could also be dismissed as fatalistic, but I would argue that her situation, and that of many who live near Chernobyl, does not fit with the traditional definition of fatalistic groups offered by Mary Douglas (1966). For Douglas, who pioneered research into the cultural construction of risk, individuals who are fatalistic are defined as having weak group bonds and are apathetic about their circumstances: "to the fatalistic mind-set, individuals do not control anything that happens to them" (Patel 2013, 125). However, those who expressed seemingly 'fatalistic' opinions during this fieldwork were often highly reliant on social capital to survive (i.e high 'group-bonds') and their decision to not move away from this 'landscape of threat' (Parkhill at al 2013, 14) was not a passive choice from a mindset of resignation, but an active decision to reject relocation welfare in favour of asserting control and agency over their own situation. It happens that for many who live in close proximity to Chernobyl, central to their ability to assert this control and agency, is the necessity of staying with the landscape they know best.

This differs from the *Ministry of Emergencies*, who suggest that Chernobyl communities lack initiative and have adopted a 'passive survival model' (2006, 65). Far from people being passive about their continued existence, they have employed tactics of survival that often exist beyond the formal economy and against official understandings of radiation risk. These proactive behaviours, that range from growing crops in officially contaminated territory, to foraging for goods inside the

Exclusion Zone, (as demonstrated in Chapter 5 and later in this Chapter) often rely upon local knowledge and communally-enforced risk understandings that are not recognised by the official construction of nuclear space. They also rely upon the *immobility* of rejecting relocation welfare.

6.10 Good soil: Attachment to place and bucolic metaphors

For many participants, avoiding relocation is vital because staying with the familiarity of home guarantees a degree of agency, independence and self-reliance that comes from the land itself, and may be lost though relocation. This view – that privileges immobility - persists despite the acknowledged health risks of radiation, by individuals who not only face these biological threats, but also the challenge of other 'normal' impacts of post-socialist marginalization, discussed elsewhere (Round & Williams 2010). For ecologically marginalised farmers, the autonomy that comes from self provisioning is seen as 'key to survival and resistance' (Stock & Forney 2014; also see van der Ploeg, 2009; Stock et al 2014). The importance of the land and the soil was repeatedly emphasised during interviews. The weight given to self-sufficiency was illustrated succinctly by a man named Petro, who lives to the east of the Exclusion Zone, downwind of one of the main plumes of radiation in a village that receives the category of 'Zone 3' or 'Mandatory Voluntary Resettlement':

> *"If you speak to anyone who was evacuated they will basically say, "Why the fuck was I evacuated? I had my own house, my own place, my own vegetables and fruits, and now, if I plant something I won't be able to see it grow because I will die before the vegetables"'.*[122]

As in other post-socialist rural (and urban) spaces, self-provisioning is an important survival strategy, especially in this post-nuclear context of economic and environmental precarity. The ability to self-cultivate food in former parts of the USSR – including Petro's village - holds an importance that exceeds its (not inconsiderable cumulative[123]) economic value, and also contributes to formations of

[122] I did interview several people who were forcibly evacuated after Chernobyl and they often comment on how they missed the nature near their old homes inside the Exclusion Zone.

[123] Pallot and Nefedova note that in 2001, household production accounted for 'a staggering fifty-four percent of the total value of agricultural production in the Russian Federation' (2003, 41), and we can infer a similar situation in Ukraine.

identity (Leonard & Kaneff 2000) and social networks (Round 2006). The centrality of domestic food production in everyday life is highlighted here as a key reason why evacuation was rejected. The self-autonomy of being able to grow '*my own vegetables and fruit*' is contrasted to the perceived (lethal) danger of moving elsewhere, especially as many consider evacuation as a rural-to-urban forced migration, where such ties with the land would be lost.

It is not just the ability to farm *any* piece of land that matters however. When I asked Petro if he thought evacuation was a bad idea he replied:

> *'Definitely...the soil there is very bad, but the soil here is very good.'*

The soil '*here*', near Chernobyl, was compared favourably with the soil '*there*': a non-specific location elsewhere - a place (imagined and real) where evacuees had been taken[124], far away from the '*the motherland'* [Ukr: батьківщина / Rus: родина] as several participants called it, with one interviewee declaring that *'here is the motherland, the motherland absorbs our soul'*. Yi-Fu Tuan's comparison between 'space' and 'place' is useful when unpacking the way local people interpret the risks of Chernobyl and their relationship with place. For Tuan: 'while space is amenable to the abstraction of spatial science and economic rationality, place is amenable to discussions of things such as "value" and "belonging"' (Cresswell 2004, 20). In the case of Chernobyl, the zoning and rationalization of nuclear territory relates to Tuan's idea of the 'spatial' (1977), where people might 'rationally' decide to accept the de jure offer of relocation welfare and move away from spaces officially defined as contaminated. However in everyday life the value of place attachment is clear. For example Petro emphasises the necessity of '*my own place'* in contrast to the threat of being forcibly relocated and falling victim to the state's spatial and strategic practices of post-Chernobyl governance. This also has parallels with de Certeau's ideas of a 'rational' strategic view of space as opposed to the tactical decisions of those with less power (1984).

[124] Chernobyl evacuees were scattered across disparate regions of the former USSR, including over 12 different oblasts within Ukraine: from Donetsk, to Chernivtsi and from Crimea to the capital Kyiv (MOE 2011).



Figure 45.1: *A painterly photograph of a tree near the Exclusion Zone. Respondents spoke at length about the importance of their land and the natural surroundings. Photograph by a research participant.*

The importance of place was occasionally expressed through rural or 'organicist metaphors' (Cresswell 2004, 332) to emphasise their attachment to the land. Reference was made to the soil, the trees, their roots, the forests and the earth. For example when a group of pensioners were asked if they would have moved to alternative accommodation, one replied: "*No, no, definitely not. I will give you*

an example, if you take a young tree you can place it everywhere and it will grow, but if you take this old tree" she points at an old withered plum tree above the bench [see **Figure 46**] *"then if you try to move it, it will die. If you cut the roots of this old tree then it is dead*." Here the metaphor of the tree as rooted in the landscape is understandable in terms of its immobility. Cresswell (2004) implores geographers to pay more attention to such symbolism, suggesting that 'these metaphors are ways of acting and not merely poetic flourishes' (330) where in this case the inappropriateness of evacuation and being put 'out of place' is made clear.



Figure 46: *The tree above this bench was used as a metaphor for why being dislocated from home would be rejected. I am sitting on the grass below the frame. Photograph by Alexey Furman.*

This close relationship people have to the land was also referenced directly when participants discussed their memories of the immediate aftermath of the nuclear accident. Participants would regularly highlight how they were working on the land and digging the soil when they first found out about Chernobyl:

"I remember the day. I was planting potatoes in the soil and people came and said that there was an explosion"

"We did not know it had happened. We were working planting potatoes, we were on the farm. We did not know anything"

"We were planting potatoes when it happened...It was April and it tasted a bit sweet in the air."

"I was working in the village like a hard worker, digging soil. Bringing food for cows and pigs, doing work around the Ogorod [garden]"

"We were playing just here in the soil. People were planting potatoes at the time, without masks, just in the earth."

This last quotation is from a 'walked interview' (Evans & Jones 2011, 849) conducted in a field near Chernobyl, during which the interviewee pointed to the exact spot where she first found out about the nuclear accident [see **Figure 47**]. It was at the edge of the field - just to the left of us - from which she saw bus loads of soldiers (liquidators) travelling towards Chernobyl, as she played (just like Dasha's sons) '*just here in the soil'* and her parents planted potatoes: *"They were staring out of the windows at us, through their gas masks"* she explained.



Figure 47: *The field where Natalia's family were planting potatoes when she first saw the liquidators heading towards the power plant. As she explained in another interview: 'When Chernobyl happened we were told nothing. There were people in masks looking at us in the fields. We were playing just here'. Photographed by participant (Natalia).*

6.11 *'Gryaznyy': Cultural Constructions of Dirt*

These narratives of the nuclear meltdown place people in the soil, emphasising their close link with their landscape and contrasting this prosaic rural activity of subsistence agriculture (which they are experts in) with the complex technological 'other' of nuclear pollution, of which they '*did not know anything'*. By emphasising how they were '*without masks, just in the earth'* they frame their bodies as bare and exposed to the threat of radiation, and simultaneously reinforce the lack of separation between body and landscape, linking their health and identity to the soil. The '*good soil*' that Petro talks about can be contrasted to the '*dirty place'* that Igor admitted he lives in and has '*a kind of immunity to'*. When Dasha spoke of her son being '*covered in dirt'* she was not referring to the dirt

from the field he was playing in, but to the dirt of radiation; one constructed as natural and life-giving, the other as 'dirt as out of place' (Douglas 1966, 36): alien, abject, and deadly.

The same Russian word '*gryaznyy*' [грязный] (dirty) was used by participants in relation to both 'bad' radiation that may harm, and the '*good soil*' that is so important to people's lives. But the culturally constructed distinction is clear. When I asked one participant who lives on the edge of the Exclusion Zone if she grew her own food she turned over her hands and said "*As you can see my hands are dirty!"* before proudly listing the vegetables she cultivated. The idea that dirt or pollution is a culturally constructed concept is salient here, and as Douglas also reminds us: 'where there is dirt there is a system' (1966, 36). For communities who live in the officially contaminated spaces of Chernobyl, their 'system' denotes purity to the soil, which is relied upon so heavily in everyday life: it is compared favourably by the likes of Petro to the imagined soil of elsewhere, and as another participant put it - "*here the forests are great, the soil is plentiful*".

The system that the state employs however measures and categorises the soil as a potential threat. Soil becomes a risk that therefore must be zoned-off or mitigated against through compensation – part of the 'strategic' (de Certeau 1984, 36) governance of Chernobyl. The fact that this compensation is wildly inadequate only reinforces the reliance people have on this contaminated soil, as well as their dependence on the tactical use of informal and illegal practices. Informal risk understandings emerge that allow this soil to retain its cultural and economic significance, despite the '*dirt*' of radiation being officially attached to the land.

6.12 *Potato symbolism: reclaiming the Abject*

This differing view of risk and purity has parallels with Kristeva's (1982) notion of the *abject* where 'the expulsion of the abject other from the symbolic order seeks to purge the self so that it may be reborn without the taint of defilement' (Weiss 2002, 47). Chernobyl radiation is abject to the Ukrainian state but also impossible to geographically expel, unlike its citizens, who in a 'state of exception' (Agamben 2005) can be moved through the 'disciplined mobility' of evacuation (Moran et al 2012, 246): The state therefore - by removing people from the contaminated landscape of the

Exclusion Zone's symbolic spatial order, thus reduces the threat to Ukraine's biopolitical self. At the same time however, the displaced (or those who have stayed or returned) become 'abject' through association, and are cast as contagious or impotent '*Chernobyl hedgehogs'* by other citizens; or dismissively framed by state actors as 'passive', 'deadapted' communities (MOE 2006) with a 'victim mentality' or 'dependency culture' (IAEA 2005).

Chernobyl citizens themselves embody this 'abjectification' however, inverting this insult into pride, proudly declaring their adaptation to their surroundings and likening themselves to "*bugs on a potato"* that *"you can't get rid of*". This bucolic metaphor - self-depreciating in tone – was used by many participants to articulate their stoic resilience to radiation and failed governance. Though Cresswell contends (I think wrongly) that metaphors are 'more likely to be produced by people in power than by people who are relatively powerless' (2004, 333) the use of the potato bug analogy here allows the (seemingly) powerless to take ownership of their abjectified status, in the same way that other participants had self-identified as '*Chernobyl hedgehog*s' and claimed they had emotionally and physiologically *'adapted'* to their toxic surroundings. Several participants used this potato symbolism, comparing themselves to *'koloradskiy zhuk'* [колорадский жук] (Colorado beetles)[125], a type of pestilence that participants often come into contact with in their day to day lives, and framing the Chernobyl landscape as a potato; living off it despite a perceived pressure to leave - their identities inseparable from the landscape:

> *"We are like bugs which are parasites, because people who have left have died, and we are here and we are still alive. These bugs are not afraid of anything, and we are not afraid of anything either. These bugs are living even if you kill them they are still alive and we are the same"*
>
> *"We are like bugs on a potato - you cannot poison us"*

[125] The potato bug consumes the stems and leaves of potato plants, meaning smaller potatoes, lower protein and starch and less productivity or even the death of the plant altogether. Endemic across vast areas of Ukraine and beyond, as Williams explains: 'each year, the seemingly innocuous potato beetle destroys as much as 40% of Russia's potato harvest' (Williams 2007, 39).

> *"Radiation still has an impact in our house, even young people have diseases. But us potato bugs are not afraid of radiation, despite everything."*
>
> *"We are used to the radiation and to this land, like bugs on potatoes"*
>
> *"We are like bugs on the potatoes, the more you try to get rid of them the more they grow"*

By associating themselves through metaphor and simile to the everyday pest of the *koloradskiy zhuk,* they reappropriate their abjectified selves as resilient and tough by invoking the non-human 'otherness' (Buller 2013, 5) of the potato bug. Comparing themselves to these pesticide-immune creatures of defilement, they highlight their own perceived otherness as well as their resistance to both radiation and the lack of state support. The choice of this rural symbolism, much like the uprooted tree metaphor, once more foregrounds their close attachment to place. The use of the Colorado beetle is particularly evocative in the local context, as Reis explains from her work on the ontological significance of the potato in post-socialist Slavic culture:

> 'Everyone despises the ravenous Colorado beetle...People spend hours picking these dreadful beetles off by hand, drowning them in beer or spirits, and cursing their neighbours who are not as devoted to this task' (Reis 2009, 197)

Unlike the uprooted plum tree analogy, the repulsiveness of the creatures only adds emphasis to its use as a metaphor. In a conversation with my research assistant (and friend Yulia) who was equally surprised at the regular use of the potato bug analogy, she recollected her own experience of these pests: '*I remember how my granny used to take me and my cousins to the field where we helped her to shake the bugs off potato leaves*' she recalled, '*we collected them in a big bucket and then burned them or squeezed them with our feet. Very, very disgusting experience, really!'*

Choosing such dehumanised pests as the *koloradskiy zhuk* as a metaphor for (self-depreciating) identity shows how animals (and not only uprooted trees) can be used as more than 'mere "signifiers" of human endeavour and meaning' (Moran 2015b, 1) but are used here to contest the abjectified status

of bare life that those who live in this landscape are subjected to. This 'organicist metaphor' (Cresswell 2004, 332) emphasises the agency of those who live here, in the same way that the tree metaphor highlighted the importance of place attachment. Just as the potato bugs have their own begrudged agency (to ruin a harvest), so too do those who live with Chernobyl possess the ability to coexist with their tainted landscaped, muddling along in unofficial and informal ways – from growing food in soil against which they have been (only nominally) compensated, to venturing into to the forbidden spaces of the Zone itself. These metaphors of potato bugs and transplanted trees highlight the complex risk understandings and place attachments that have emerged, as well as the pastoral realities of living with Chernobyl, which is something missing from existing academic approaches to this nuclear disaster.



Figure 48: *A woman standing in a patch of potatoes near an apple orchard. The hard labour involved in growing these crops should not be underestimated (Ries 2009). Photograph by research participant.*

Previous Chernobyl scholarship has tended to focus on the urban dimension of the disaster (see Dobraszczyk 2010), framing the catastrophe as a form of post-atomic 'urbicide' (Coward 2008) and focussing on how the built abandonments of the Zone have become the focus of 'dark tourists' and scholars alike (Stone 2013). However this thesis argues that the lived experience of Chernobyl today is an inherently rural one. Far more people were evacuated from the hundreds of villages that now lie buried[126] or deserted inside the Zone than from the infamous city of Pripyat. This environmental bucolicide has rendered vast swathes of pastoral land off-limits, with those who remain living on the edge of this space evermore determined to carry on using household-based survival strategies that rely upon potentially contaminated land. Scholars such as Round, Williams and Rodgers (2010) in their research on Ukraine rightly encourage us to look 'beyond traditional readings of the economic rationales' (Round et al 2010, 1198) when analysing household production. I would suggest that in Chernobyl-affected space we might also be encouraged to look beyond traditional understandings of health and place, and see how informal risk constructions have allowed people to continue to rely upon domestic production in day to day life. The way that informal risk understandings are worked into everyday life is best shown through an ethnographic vignette, where we return to Viktor, as he uses informal economic practices to obtain food security. We will see how self-provisioning, social networks, informal activity and unofficial risk understandings all converge to form the day to day realities of life near Chernobyl. Food here becomes a lens through which many of the prosaic yet exceptional activities around the Zone can be viewed, including those that rely upon informal understandings of risk.

[126] Villages inside the Exclusion Zone that were extremely contaminated were buried by liquidators in the months and years after the disaster. Some of the radioactive vehicles that were used in this process have been illegally scrapped.

6.13 Informal food practices

A participant's description of food activity - her statement reflects the views of those interviewed:

> *'We eat everything. Everything, everything, everything. Tomatoes, potatoes, cucumbers, everything is grown by ourselves in our own soil. We have milk, we give food to cows and to pigs, and we go to the forests to get mushrooms and berries.'*



Figure 49: *Klara pitchforks potatoes into wicker baskets, to be stored in their food cellar below an outbuilding next to their house. Photograph by participant (Viktor).*

Standing in a small barn by his house, just a few kilometres from the Exclusion Zone fence, Viktor explained how he intended to exchange surplus sacks of potatoes with members of his social network who lived nearby: "*I have no money to pay them, only potatoes. If I have the money to pay them then I do*". [127] The potatoes were stored below the wooden outbuilding where he and Klara keep a few livestock: three pigs and a cow - their chickens roaming around the yard [the same barn is shown in

[127] Sections of this have been previously published in Davies (2015)

Figure 5, Chapter 3]. The smallholding was typical of the parcels of land found in the Chernobyl border region, more 'household plot' (Czegledy 2002, 203) than farm. Between formal employment and looking after their elderly relatives who lived nearby, there was little time for growing surplus cash crops. In the small cool cellar, above the mounds of potatoes grown earlier in the summer, an array of other self-cultivated or foraged foods stood high on shelves, pickled in large jars.[128] Onions, tomatoes, mushrooms, beetroots, berries, gherkins and a variety of other fruit and vegetables sealed in glass. Though a banal and ordinary scene to anyone familiar with post-Soviet rural and urban life, it is one made unusual and distinct by the assertion that radiation's 'consumption in food products – especially for those living near Chernobyl – is practically unavoidable' (Phillips 2005, 288). Yet this array of hard-earned produce in Viktor's cellar was, for him at least, untarnished by the threat of radiation.

If the jars represented anything, it was not the invisible threat from contamination, but the months of toil it had taken to put the food there in the first place; domestic food production in Ukraine should not be over-romanticised (Polese 2009; Round et al 2010). As another participant suggested - for all the attachment that he has to his land: '*You have to work very hard on the soil for you to live near the Zone. It's the devil's work*'. Like other forms of informality, the self-cultivated and gathered food was an expression of agency – minor victories against the uncertainty of poverty, each jar an 'economic cushion' (Czegledy 2002, 209) that exists beyond the formal economy and failed welfare system.

[128] For an interesting discussion of the anthropological significance of these jars in Eastern Europe see Smollett's work on 'the economy of jars' (1989, 125)



Figure 49.1: *A minor victory? A jar of pickled wild mushrooms gathered from forests inside the Exclusion Zone. Mushroom foraging is discussed later in this chapter in section 6.16. Photograph by Thom Davies.*

Wide-scale post-socialist marginalization has meant many Ukrainians 'are compelled to worry more about putting food on the table than about the "ecological state" (*ekolohichnyi stan*) of that food' (Phillips 2005, 288). As one elderly woman who lives near the edge of the Exclusion Zone explained, in the confusion and chaos after Chernobyl, she was told to avoid eating various foodstuffs such as berries and mushrooms, or to drink locally produced milk, but:

> *"If you are not going to drink or eat everything that they say, then you won't even have the energy to move even your legs ... you'll have no power to even move your legs..."*

In the wake of a de facto absence of formal welfare protection, many people continue to participate in risky and informal food practices, normalized and reinforced by local social networks. Viktor took the potatoes to his friend who was sitting in a boat moored at the water's edge very near the border of the

Exclusion Zone, and selected a couple of larger fish as barter for the potatoes. As a coping tactic, food exchange in rural post-socialist space is commonplace and very well documented in academic literature (Jordan et al 1998; Clarke 1999; Moran 2001; Bridger and Pine 2013). However, what makes this act interesting (along with the thousands of similar actions that regularly occur in this nuclear border space), is the way questions of health are raised with each informal transaction, and how these interactions rely upon a shared unofficial understanding of radiation risk. Exchanging food within social networks has long been recognised to bind kin through its symbolic importance (Smollett 1989), but these nuclear exchanges take on a further symbolism that reinforces and reciprocates communal risk constructions. This is especially the case here, where there is an element of risk and illegality to the exchange: the informal transaction that Viktor was tapping into here was not a low-level exchange with a lone fisherman, but part of a wide scale informal fishing industry that occurs on the edge of - and deep inside - the Exclusion Zone.

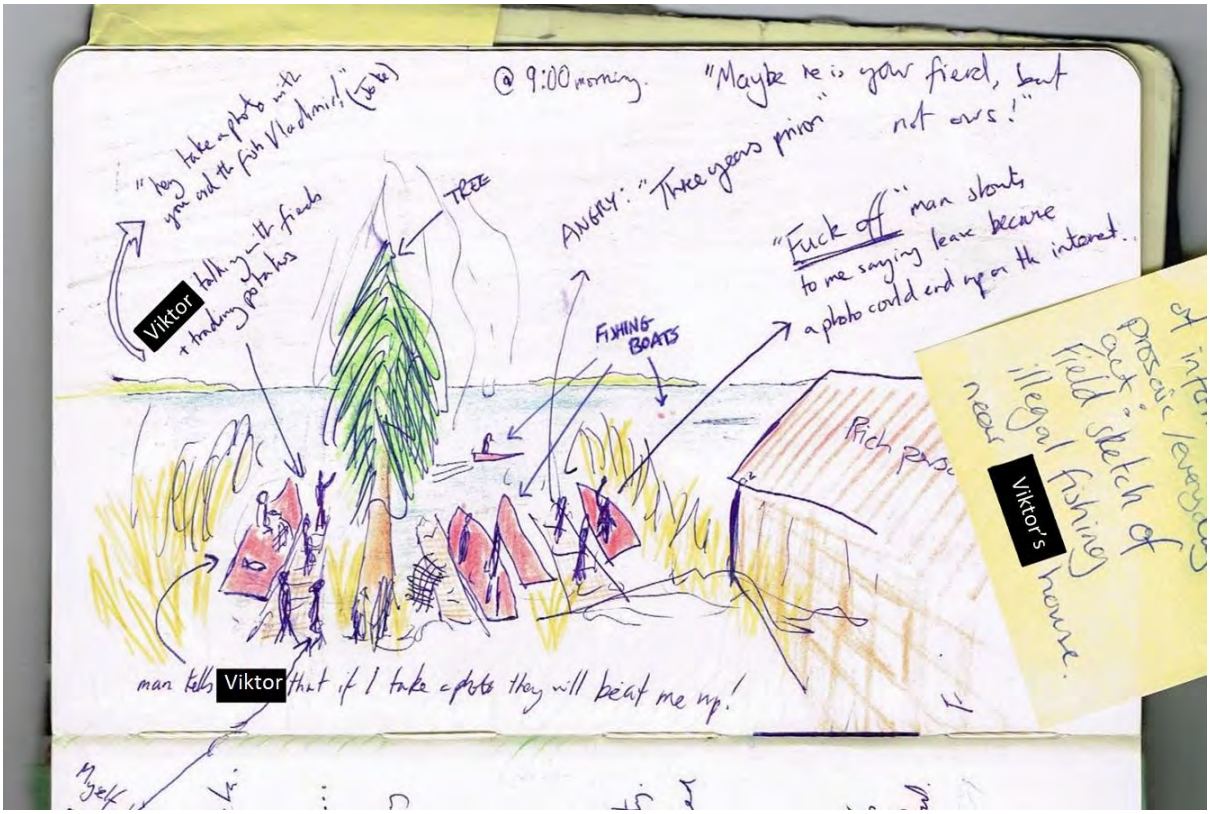


Figure 50: *A field sketch of an illegal fishing operation near Chernobyl. My presence, and most notably my camera, was not welcome here, with one fisherman shouting 'Fuck off' and another*

declaring that he could get 'three years in prison' if a photograph of this scene was published. Later that day I made this sketch from memory, trying to highlight the mass of activity.

Concealed from the road, between a smallholding and the tall reeds that are synonymous with the Pripyat Marshes, around thirty men were busily folding fishing nets, repairing their boats, fixing out-board motors, and hauling in the morning's catch [see field sketch in **Figure 50**]. The number and size of the fish suggested this was not just evidence of 'the growing commercialization of rural household production' (Pallot & Nefedova 2003a, 47), but part of a wider industry of informal (and formal) activity that takes place in this nuclear border region. Dilapidated concrete signs nearby read '*Fishing is Strictly Forbidden'* and an unmanned police watch tower (part of the Exclusion Zone's border 'defences') overlooks the river that runs past the 'most contaminated water body in the zone of the Chernobyl accident' (Kryschev 1995, 217). The unfixed and ephemeral character of this watercourse that flows through the Exclusion Zone itself adds one more layer of liminality to an already fuzzy nuclear border. Respondents suggested the fish were destined to be sold for money in cities such as Kyiv, Malyn and Ivankiv, as opposed to being solely exchanged within localised kin networks - the sheer amount of fish collected in large nets made this monetary outcome inevitable. Like the salvaged metal from the previous chapter, environmentally risky foodstuffs from restricted areas such as mushrooms, game, berries and fish regularly enter the food chain in Ukraine through various informal actions and channels, involving trespassing – by land or water – the official borders of the Exclusion Zone (Davies 2011).

"*All of the men you saw are criminals, you see - it is illegal to fish there. And they are dangerous..."* said Viktor that evening over a bowl of soup made from the traded fish *"...but I am not afraid of them"*. Nor was he afraid of higher levels of radiation that could be found in the food. Viktor is a well-connected man, his large social network vital to his household survival strategies; allowing him to weave in-between the informal and formal; to tactically access spaces that have been subdivided, forbidden and controlled by those with power (de Certeau 1984).



Figure 51: *A photograph of Viktor and Klara's pet cat next to the fish Klara is preparing to cook. Viktor obtained the fish that morning by trading them for a sack of potatoes with the illegal fishermen. Photographed by participant (Klara).*

Uncertainty about radiological health, as well as economic insecurity and a lack of adequate welfare support has produced informal understandings of radiation risk in communities that surround Chernobyl. These unofficial nuclear risk perceptions have become a shared welfare resource, allowing abandoned communities to act beyond the official nuclear limits and rules of the Exclusion Zone. The act of exchanging potatoes grown in soil around Chernobyl with illegally caught fish from within the Exclusion Zone, relies on a collective risk consciousness that reinforces informal understandings of radiation, and ways of alleviating the lack of welfare provision. In this way, the excluded and abandoned population of Chernobyl have created new mechanisms for social security that are independent from the state's failure to provide 'clean food' - by communally and informally redefining what is considered 'clean'. As Douglas reminds us, 'there is no such thing as absolute dirt, it exists in the eye of the beholder' (1966, 2), and so too for dirt's antipode.

New 'social facts' about radiation risk are demonstrated and reproduced through risky food practices and informal activity. This does not deny that dangerous food activities around Chernobyl are based partly on necessity (of having little practical alternative), but these behaviours are also normalised, reinforced and renegotiated by local and embedded understandings of radiation risk that is fostered and replicated informally through social networks.

6.14 *Halo effects*

In another example of informal understandings of food risk, one mother who lives adjacent to the contaminated space of the Zone, compared her home-grown (and gathered) food, to shop-bought produce: '*Everything you buy is full of chemicals and its genetically modified stuff*' she tells me, as we eat in her kitchen, '*I know this is my food, so I know it is absolutely natural*'. Her village is right on the edge of the Zone, her garden perhaps a forty second stroll from the nuclear border fence which is to left of her garden-gate along an increasingly moss-covered road which is stopped abruptly by rusty barbed wire. Like for many others in this region, this opinion that home-grown and gathered food is safe is held inharmoniously with a wider belief that Chernobyl radiation is deadly. To '*know*' the food, is to grow it yourself, and to toil your own soil ensures its safety. '*Why should we be afraid of growing our own?'* she continued, offering me another glass of samogon[129], '*The soil is ours*'.

Research into air pollution perception has noted evidence of a '"neighbourhood halo effect" in which individuals show a reluctance to attribute high-level air pollution to their home area' (Bickerstaff & Walker 2001, 134). An established body of scholarship supports this cognitive bias (deGroot, 1967; Rankin, 1969; McBoyle at al, 1972), with people repeatedly considering their immediate communities to be less polluted than elsewhere. This also occurs in the rural communities of Chernobyl as well, except not for air pollution but radiation.[130] Whilst people consider Chernobyl to be very harmful in general - and responsible for killing people, including family members - the *place* of this danger is rarely near their own homes.

[129] Samogon is homemade vodka or moonshine.
[130] Though radiation was occasionally referred to as '*bad air*' .

Participants would describe how other villages were contaminated but not their own. For example, one participant who lives right on the edge of the Exclusion Zone acknowledged the presence of radiation but explained how '*This place and the nearest villages [are clean] and for some kilometres across the border into the zone it is definitely clean'*. For people who live near Chernobyl, their immediate surroundings, their home villages, their farmlands and certainly their garden soils are considered free from contamination, as if shrouded in a bubble of neighbourhood protection.



Figure 52: *Natalia's sister and her niece plant potatoes on their plot of land by their home near the Chernobyl Exclusion Zone. Photographed in April 2013, around 27 years after the nuclear accident, by a research participant.*

There is a rural 'halo effect' (Bickerstaff & Walker 2001) that takes place and surrounds each household plot, protecting people from the nuclear hazard. The strong sense of place attachment expressed by many participants also discourages them from attributing harmful characteristics to their direct spaces of home (Mah 2009; Venables et al 2012). In this pastoral environment this can be linked to identity too, with farm spaces often considered reflections of the farmers' sense of self,

following Leopold's (1939) notion that 'the landscape of any farm is the owner's portrait of himself' (cited in Flader and Callicott, 1991, 263). This is supported by later ethnographic scholarship suggesting that for people who work with the land, their plot reflects their status and identity with 'the farm becom[ing] embodied through family labour' (Gray 1998, 341). In this way, home-grown food becomes safe precisely because '*this soil is ours'*, enmeshed with identity and place attachment. An attachment to the land that is especially strong for those who use natural resources for surviving day to day life (Graybill 2012, 2013) The physical act of growing, planting and harvesting vegetables too, also therapeutically 'cleanses' the food, ensuring it is '*absolutely natural'*, reflecting the idea that knowledge of the environment can be embodied (Carolan 2008). This reflects a widely held rationale for growing potatoes (as opposed to buying other vegetables) on the basis that: 'Your own potatoes are "ecologically clean." They taste better and are healthier.' (Ries 2009, 199)

6.15 Micro-geographies of risk: beyond formal nuclear spaces

One exception to the 'halo-effect' is the case of Natalia's house. She explained how the window to her mother's loft was accidently left ajar for the first few days after the accident. The liquidators who were stationed in her village had warned everyone to stay indoors and to close the windows in order to *'keep the dust out'*, but the window at the back of the house remained open:

> *'After some months our house was inspected, and they said "OK, on the ground floor you may live, but you must not go upstairs"'*

She described how the upstairs of her house became so contaminated that for ten years no one dared go upstairs, half her house becoming a domesticated 'exclusion zone' that existed, unofficially, outside of the official nuclear spaces of Chernobyl: *'It was checked every two years, and each time they told us "don't go there"'* she explained. Natalia went on to describe how there are other places nearby too 'where *hardly anything will grow';* corn fields and cereal pasture *'where the radiation has landed and nothing will grow there*.'

Indeed informal micro-geographies of risk have emerged in local communities around Chernobyl, that exist quite separately from the official mapped and 'Zoned' construction of nuclear space. They are

understood locally, often without the aid of scientific instruments and dosimeters. Farmers rely upon this local unofficial knowledge of place, describing how they know which fields they should avoid cultivating because the soils are polluted. As one participant explained: '*We planted four strips of potatoes, but two were black and two were fine. Radiation fell like rain, unequally'*. Others described how in certain areas the potatoes grew in usual ways or were covered in '*stripes*' - in their opinion - because of radiation:

> *'Some of the potatoes have stripes, like a whole row of potatoes would have lines through them - from the bad air. In the morning the potatoes are good but by the evening they can go bad.'*

This unofficial knowledge was formed through subtle everyday observations, which contribute cumulatively to informal coping tactics in this peripheral nuclear space. A whole complex micro-geography of risk and place exists separately from Chernobyl's official strategic governance, impacting how people interact with and negotiate the landscape. This corresponds with de Certeau's (1984) discussion of the differing perspectives of tactical and strategic power. As discussed in the literature review, de Certeau describes how strategic actors attempt a 'mastery of places though sight' with the 'division of space ma[king] possible a panoptic practice' (1984, 36). One could argue that for these local, intimate and unofficial nuclear geographies, it is the (seemingly) powerless individuals with their informal understandings of space who are better placed to understand the landscape and its risks, which has resonance with the work of Brian Wynne (1996). Indeed the division of space, by creating the Exclusion Zone, has left areas outside its sphere that are only noticeable by local inhabitants. It is true that Chernobyl citizens 'lack a view of the whole'(de Certeau 1984, 38) in the same way de Certeau describes tactical practitioners, but these informal ways of understanding the intricacies of the unofficial nuclear landscape help people cope with the risks of Chernobyl in everyday life. Chernobyl risks have become embedded into the nuanced and intricate understandings of place that participants have developed.

Moving on from de Certeau's confrontational understandings of space and power, one could suggest that local inhabitants of risky places develop a 'mastery of places' (de Certeau 1984, 36) through *embodiment*, where it is only through 'inhabiting' a landscape that a place becomes a meaningful environment (Ingold 2000, 173). Indeed the local understandings of the environment chimes with Tuan's work on senses of place, suggesting that 'the feel of a place takes longer to acquire and is made up of experiences, mostly fleeting and undramatic, repeated day after day and over the span of years' (Tuan 1977, 183). As the ex-mayor of the administrative city of the Chernobyl region (Ivankiv) explained '*You cannot understand this territory unless you live here. I rent out my flat in Kyiv because I prefer to live here'*.

These informal risk understandings occur in tandem with 'normal' informal economic activity that has been well documented elsewhere (Round et al 2010; Cassidy 2011; Williams et al 2013; Morris & Polese 2015), and add a new layer of resistance to state abandonment and the lived realities of bare life. The collective risk consciousness that is embedded in these practices and normalised in everyday informal activity around Chernobyl allows people to dwell in a landscape where the state has retreated from its welfare responsibilities.

6.16 *Nuclear Mushrooms: blurring borders and embodying risk*

'We know that radiation is there. We know that. And police tell us "Don't go there, there is radiation". On the fence there is a sign that says that there is radiation "Don't go in, there is radiation". And we go. Blueberries, blackberries…'



Figure 53: *A research participant who lives near the fence opens a jar of pickled mushrooms that she collected in the Exclusion Zone over the summer. 'As long as I have walked I was brought to the forest' she tells me, 'The only option of surviving was to collect mushrooms and sell them for money'. Despite facing arrest by border guards, she regularly enters the Exclusion Zone and explains how she sells mushrooms to boost her small formal income from her pension: 'Over the summer there was a place, here in the village there was a room that accepted mushrooms.' Photograph by Thom Davies.*

'*Babushkas don't go into the Zone*' – Border Guard

Perhaps no other activity encountered during this research demonstrates both the link people have with place and the informal ways that risk is negotiated in everyday life, than the widespread practice of picking mushrooms and berries inside the Exclusion Zone. For economically marginalised

individuals living on the border of Chernobyl's official nuclear space, illegal mushroom and berry foraging in contaminated areas is a widespread informal activity. The surplus food that is not consumed by the foragers and their families often gets sold into urban centres in Ukraine. The ebb and flow of these goods is an unseen but prosaic example of an informal economic activity that has potential health implications.

These wild foods are some of the most harmful produce in a nuclear landscape because of the high levels of radiation that they can contain. So much so that levels of contamination in individuals increases dramatically during the foraging season (Botsch et al 2001). This fact is combined with the social and anthropological importance of foraged foods, noteably in post-socialist space relating to identity, spirituality, and survival (Caldwell 2007; Yasmin-Pasternak 2009; Staddon 2009; Stryamets et al 2012). Despite mushroom and berry collection being banned in contaminated regions, especially inside the Zone itself, this informal behaviour is a widespread and normalised part of everyday life for marginalised individuals in this border region. With the use of foraged products 'ranging from emergency food for the hungry to the mark of the festive table' (Yamin-Pasternak 2009, 95) it is perhaps unsurprising that many people collect, consume and sell berries and mushrooms that are potentially 'unclean'. This paradox of invisibly tainted, yet abundant nature was summed up concisely by a woman who lives on the edge of the Zone: '*The nature here is really beautiful...'* said Svetlana (late-50s), *'it's just that people from the USSR fucked it up*'.

Svetlana, who lives a few hundred meters from the fence around the Chernobyl Exclusion Zone was at her local cemetery during Easter *provody* (проводи) celebrations, where people traditionally visit the graves of their relatives and eat and toast to their memory. Svetlana had brought homemade vodka and mushrooms with her, but was alone that day as her husband was at home due to illness and her son, who is a guard in the Exclusion Zone, had to be at work. As a Priest walked past repeating a prayer and sprinkling holy water, she explained where the mushrooms were from. Like many people, she had taken them from within the Exclusion Zone itself – the forbidden forests of the Zone are only a short walk from her front door. She explained how she knew which areas were clean and which were harmful, insisting that beyond the fence inside the zone there were many uncontaminated places.

Although Svetlana does not own any scientific equipment able to 'see' the radiation, she insists that she knows which areas are '*dirty*'. Her informal activities in the Zone are intrinsically linked to her informal understandings of radiation risk. Svetlana's neighbour, a few doors down, described how:

> *'We use the places that we know so we know that these places will be clean. We use the places we are sure about so we don't even need to measure it. I can even not measure it and I know. If I am in two minds about the place I measure, I go to the places in which I am sure are ok.'*

Unlike the majority of respondents, this interviewee admitted to occasionally borrowing a dosimeter from a friend in the village to check her gathered food, but in general she relied - like many others – on her intimate knowledge of place; an unofficial map of '*dirty*' and '*clean*' space. These informal understandings of place and radiation are combined with regular practical and folkloric knowledge of which mushrooms and berries are poisonous and which are edible.

I asked Svetlana if she was worried that she would get into trouble with the police if she was found inside the Exclusion Zone but she described how most of the border guards just turn a blind eye to '*an old lady like me*'. Many of the militia are part of Svetlana's social network:

> '*the border guards come to my house sometimes and they say "Baba*[131] *Svetlana, please make us some food" and so I do...I am very friendly with them*'

Several people described this sort of relationship with state officials. In Svetlana's case her son works for the border police so it is likely that she is well known, but others too explained how the police sometimes turn a blind eye to gathering food in the forbidden forests of the Zone, especially as this is a common activity for elderly people:

> *'If they do stop us we just say "We are very old with a small pension – life is difficult, please don't charge us" and they don't charge us.'*

[131] 'Baba' - short for Babushka – is an affectionate and familiar way of addressing an elderly lady.

However this is not the case for everyone, and several participants described being arrested many times inside the Zone, having to pay an 800 hryvnia fine (£30) which is roughly a third of an average monthly income. One participant described his frustration that after long days of foraging, the border guards sometimes wait at the edge of the Zone and confiscate the mushrooms and berries to '*sell this food themselves'*; another described how she had a panic attack when she was arrested and had to wait for hours for an ambulance to pick her up. She described it as '*nonsense that it is forbidden to gather mushrooms in the Zone'* and retold stories of how her father had taught her to recognise every tree in the forest, as well as the feelings of depression she had after the Chernobyl accident when she was told she could no longer walk in the forests. Like many, she doesn't worry about the risks from radiation, just getting caught: *'All summer I was stressed when crossing the border because I was worried that the police would catch me'* she explained. Indeed Article 42 – 2 of the Criminal Code of Ukraine (CCU 2001) stipulates that this activity is punishable by a fine of up to eight to twenty five times the monthly income of the offender – much higher than the 800 hryvnia penalty that some got away with (including myself). The CCU outlaws activities including:

> 'Harvesting, processing for the purpose of marketing or selling food or other products of radioactively contaminated above the levels permitted in the absence of evidence of offense under the Criminal Code of Ukraine' (CCU 2001).



Figure 54: *Despite the risks from contamination and getting caught by the police, many people gather wildwoods in the polluted forests around Chernobyl. Photograph by Thom Davies*

6.17 *Tactics and Mobility*

Many described the tactics they had developed to avoid detection. For example a hunter who sets traps in the Zone to catch wild game, described how he uses his intimate knowledge of the Zone's forests to evade the border guards, claiming to know '*every route through this forest*'. He described how he deliberately uses spaces and routes that he knows the police avoid:

> *'They cannot even notice me because I know everything and I go around them... I go through the deepest parts of the forest that the militia never enter – they are afraid.'*

Other mushroom and berry foragers described how it is best to avoid crossing the border during the middle of the day, when the police wait '*like spiders'* for you to cross. Better to '*go early in the morning'* said one man *'and return late in the evening'*. This use of time echoes de Certeau's emphasis of how practitioners of tactics utilise timely opportunities:

> '[While] strategies pin their hopes on the resistance that the establishment of place offers [such as the Exclusion Zone]; tactics [pin their hopes] on a clever utilization of time, of the opportunities it presents' (de Certeau 1984, 38-39 emphasis in original)

This tactical knowledge was combined with more traditional discussions of the best times of year and season to pick berries and mushrooms, showing how tactical and time-honoured knowledge is vital to negotiating life in this space of exception. For those who enter the forests to gather mushrooms and berries, or pick herbs and valuable plants such as 'Lilly of the Valley', as well as the hunters who trap animals such as wild pigs; their activities around the Exclusion Zone can be seen as tactical resistance to the prescribed strategic governance of Chernobyl. Not only are these activities illegal according to the law, they also rely upon informal understandings of risk and an intimate knowledge of place, which can be seen as part of the tools of tactical resistance. As another hunter explained:

> *'I only hunt by foot, alone, not by car – I walk all over the forest – close to 50km a day. Only with a knife and a piece of pig fat for me to eat in my rucksack. I use traps. I enter the zone on a bike and hide it in the bushes and then go by foot... only on my own though, never with company...'*

The intricate techniques of subterfuge and deception that people use when illegally entering the Zone also echo de Certeau's notion of tactical uses of mobility. De Certeau describes how practitioners of tactics rely upon 'a mobility that must accept the chance offerings of the moment...vigilantly mak[ing] use of the cracks that particular conjunctions open in the surveillance of the proprietary power. It poaches them. It creates surprises in them. It can be where it is least expected' (de Certeau 1984, 37). Here we can readdress the idea set out earlier that agency can come from the *immobility* of resisting the 'coerced' (Hannam et al 2006, 11), 'forced or disciplined mobility' (Moran et al 2012, 448) of evacuation. In a more nuanced reading, the wider immobility of not being forced to leave the landscape people know best, allows a more local and expert mobility of place, that tactically makes

use of spaces that are beyond the state's field of vision. Immobility therefore creates the opportunity for tactical mobility.

These local illegal movements into the forbidden spaces of what some participants referred to as '*our forests*' also occur for economic reasons. These activities doubtless have motivations relating to identity, tradition, and attachment to the landscape, but many participants described how they also sold surplus gathered and caught food. This informal and potentially harmful economic activity provides a useful addition to the tiny formal incomes that people receive. This economic rationale also helps to justify the nuclear and non-nuclear risks that people face.

For example, a hunter described how he has '*a constant buyer for furs'* and during hunting season can sell their meat and pelts which makes '*more money than the pension'*. Svetlana, and other foragers, described how during high season a van from Kyiv arrives in the border villages to buy foraged mushrooms and berries. The van then goes to Kyiv where the food is sold on informally. While not as lucrative as hunting or the scrap metal salvage described in Chapter 5, the money from selling berries and mushrooms is a useful secondary source of income. Svetlana explained that the previous season, after she had preserved enough berries and jam for her own household, she sold 37kg of surplus berries to these men, making around £50. Considering her formal household income from her husband's and her own pension comes to £125 per month, this extra money proves very useful. Other people from the border region sell mushrooms at the side of the road leading to the cities of Ivankiv and Kyiv – a common scene in post-socialist space, but rarely with such radioactive potential. This informal activity around the nuclear border should not be viewed in terms of an 'arbitrage opportunity' (Cassidy 2011, 634); one based in purely economic terms with goods being cheaper on one side of the border than the other (ibid, Bruns & Migglebrink 2012), but rather based on local understandings of radiation risk relating to a privileged 'sense of place'; an opinion that lay-knowledge is more reliable than State supported ideas of '*clean*' and '*dirty*'. As Svetlana explained when talking about collecting food from inside the Exclusion Zone:

'Many people ask me "Are you not afraid of radiation?" and I tell them "What can I do? It hasn't got any smell...and it is invisible...what can I do? There is not even any clicking...'

There exists a burgeoning literature in the field of rural geography focussing on 'alternative food networks', often, as suggested by Round et al (2010), over romanticising the concept. There are few more *alternative* foods than those taken from contaminated rivers and soils within (and without) Chernobyl's official landscape, to be exchanged through gift, barter and social networks and to arrive street-level at the top of metro staircases in the bustling heart of urban Kyiv. Or, as is more *visible*, to be eaten by local inhabitants of the Chernobyl border region; not in denial that radiation is a very real and harmful reality; but part of complex risk understandings that allow people to dwell in an ecologically polluted setting. For marginalised households on the edge of this nuclear landscape, the collection of food from within the Exclusion Zone is just one aspect of the formal and informal behaviours that construct their survival strategies. The potential risk from radiation is only one of a number of threats that punctuate everyday life, including the risk of getting caught doing the illegal activity [**Figure 55**], not to mention the enduring – and highly visible - risk of poverty.



Figure 55: *A research participant walks through the border fence into the nuclear Exclusion Zone, showing how she goes into the forests to collect mushrooms and berries. For participants who live on the edge of the Exclusion Zone this illegal practice is extremely common. The crossing point here is one of many informal routes into the Exclusion Zone, and is also used by scrap metal collectors who wander through the forests towards the abandoned collective farms and other buildings inside the Zone. As one participant (pictured) explained: 'There are a lot of people and a lot of cars in Kyiv, but here is the forest and the forest is clean. There is no radiation in the forest, it is clean. Our forest is green, not dry'. Photograph by Thom Davies.*

In the previous chapter the informal economic activity of scrap metal extraction was described, where the illegal removal of such metal effectively stripped its geographically enshrined 'nuclear' status by removing it from the Zone and transferring it into the formal economic market. Here a similar situation takes place, where goods are smuggled from officially contaminated places, and enter the (in)formal food chain. Here however, it is not just the boundary of the Zone that is contested, but the borders of the body. Most of the food taken from the Zone is eaten by those who collect it, stored in

jars and preserved for later in the year. By consuming this extracted food they embody and 'absorb' the radiation risks of Chernobyl.

6.18 Conclusion

Informal risk understandings near Chernobyl are socially produced and mutually reinforced, allowing people to extend their coping tactics beyond the official construction of nuclear space. This occurs both geographically – allowing people to enter the exclusion Zone to collect mushrooms, berries or hunt for wild game – but also in the sense that unofficial risk understandings permit people to stay with the landscape, and carry on using household survival strategies such as domestic food production.

Place and (im)mobility become important expressions of these informal risk understandings. The importance of immobility, for example - through rejecting the 'disciplined mobility' (Morna et al 2012) of evacuation - permits a local mobility of using unofficial spaces and local expertise. These spaces of expertise not only occur inside the Zone, with participants describing how they know which areas are 'clean' and 'dirty' (and how to avoid being arrested), but also outside of the Zone in their local surroundings and household plots; micro-geographies of risk have emerged where participants claim to understand which areas of farmland should be avoided due to unofficial contamination.

These informal understandings of risk also run parallel to (or against) the official governance of Chernobyl and its spaces of exception. Potentially risky behaviours allow people to tactically resist their status of bare life by promoting agency and ensuring people can continue to dwell in a polluted and economically peripheral region, despite the de facto abandonment of state protection. In doing so, participants draw on bucolic metaphors of place attachment and resistance, taking pride in their ability to survive near Chernobyl, and reclaiming their 'abjectified' (Kristeva 1982) status of nuclear 'others' by likening themselves to the non-human pestilence of *koloradskiy zhuk*, who refuse to leave their potato fields, just as they refuse to leave Chernobyl. 'From its place of banishment, the abject does not cease challenging its master' (Kristeva 1982, 2) and so too do the seemingly powerless adopt 'tactics' that subvert the state's governance 'strategies' (de Certeau 1984), communally redefining notions of

'clean' and 'dirty', while blurring the borders of the Zone and their bodies as they use informal risk understandings to navigate day to day life.

Heidegger's notion of 'dwelling' (1971) becomes apposite to the lived experience of the Chernobyl nuclear disaster, given the embedded understandings of risk and space that people describe. For example, participants suggested the evacuated population (whether forced or voluntary) have died because of their separation from the 'motherland', having succumbed to the stress of forced mobility like 'uprooted trees'. They compare this to their own stories of survival and subsistence where they repeatedly utilise local understandings of risk, as well an embodiment narrative that describes their own 'immunity' to radiation or ability to 'just absorb it'. Embodying the landscape in this way occurs in tandem with a universally held opinion that Chernobyl is extremely deadly, with each respondent listing a catalogue of diseases and personal bereavements linked to the nuclear accident. The danger of Chernobyl as a technological hazard is not denied, but the land itself - 'our soil' – is not considered a threat but part of the solution – integral to the everyday survival tactics of those who live near Chernobyl.

The official governance of Chernobyl can be seen as a state of exception created to control and contain nuclear risk, and protect Ukraine's biopolitical self. Laws are created, borders emplaced and populations are moved to mitigate the impacts of nuclear disaster. For those who continue to live with this landscape of threat however, a whole other epistemology of space has emerged. For the research participants, soil for example becomes synonymous with self-sufficiency and agency, and is imbued with the anti-atomic 'halo effects' (Bickestaff & Walker 2001, 134) of place attachment. This contrasts the official view, where the soil is framed as a risk to be mitigated: categorised, measured and (insufficiently) compensated for.

Chapter 7: ***Conclusion***

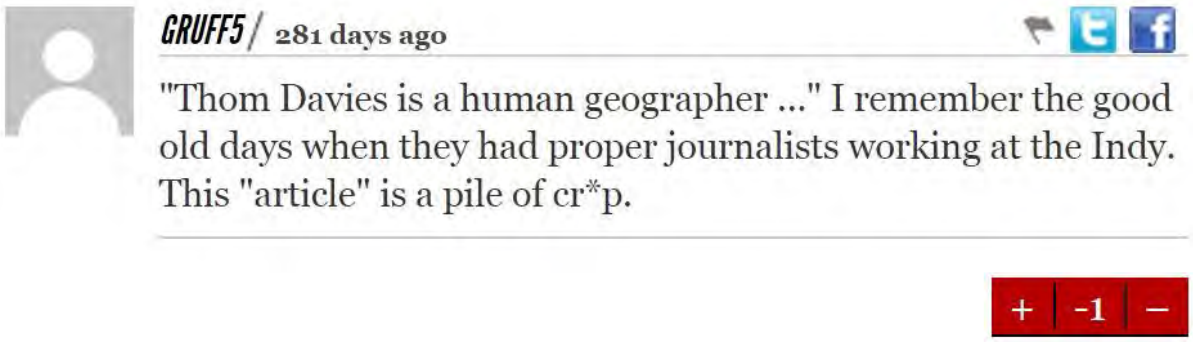


Figure 56: *Comment posted below my article in the Independent by 'Guff5', an anonymous troll. Please find said article printed in the appendix of the thesis.*

'Gruff5' was right of course, that I was not a 'proper journalist'. A proper journalist would not have spent quite as much time as I had researching Chernobyl. A proper journalist would have perhaps trawled the web to scan-read a few articles about radiation, telephoned a couple of UK - based 'Chernobyl children's charities' for some 'colour' (quotes) and, if they had a good relationship with their editor, they may have wangled a trip to Ukraine on expenses for a daytrip to the Exclusion Zone. Perfect. But what about a 'proper' human geographer?

This research experience has involved navigating borders, both within the field and beyond. Whether playing the role of a researcher, a photographer, or in the case of the Independent article, a journalist, the research has involved various guises and performances. The border between these roles would need navigating just like the borders of the Zone itself, another artificial construct to be carefully considered (or completely ignored). Conducting human geography has involved negotiating different roles at different times as a 'multiply positioned actor' (Katz 1994, 67): from a clueless outsider needing help from strangers in 'the field', to an informed academic presenting research from the pulpit of the conference room (Davies 2011; 2014). These, and many other roles were adopted during the research, the border between them informally and subjectively changing, just like the research participants had navigated the geographic borders between clean and unclean space.

Throughout the research process, borders have been placed around the ethnographic data, deciding what to include and what to leave unsaid, how to frame and understand the findings. Gruff5 had a point however, in the sense that had another person conducted the research, be it a 'proper' journalist or another academic, the conclusions may have been very different. There would be different framings, arguments, and theoretical approaches. As stated in the methodology, what has been presented in this thesis is a 'situated' (Haraway 1988) understanding of Chernobyl, which I hope will build on previous knowledge of technological disaster and nuclear space (Petryna 2002; Phillips 2004; Kuchinskaya 2012; Hecht 2012), contributing to wider debates in social science and area studies, and continuing to do so as I publish the research from this PhD (see Davies 2013; 2015; Davies & Polese 2015).

The broad aim of this study was to explore the ways in which the nuclear spaces of Chernobyl have been socially constructed and subsequently informally understood and resisted by people dwelling in these landscapes. This has involved the first in-depth ethnographic study of everyday life in the nuclear landscapes around Chernobyl. This chapter will summarise the empirical findings of the thesis before looking at the theoretical contributions that the research has made, specifically in relation to Agamben and de Certeau. The chapter will conclude by suggesting future research avenues.

7.1 Towards an informal geography of Chernobyl

The first empirical chapter demonstrated how the Chernobyl landscape is a 'constructed' space that has been produced through processes of 'nuclearity' (Hecht 2012). Unlike other disaster landscapes, nuclear spaces must be *made* in order to come into being, and this process of assembly is never neutral, but involves a confluence of factors beyond mere technological measurement. The chapter argued that Chernobyl's nuclear territories, borders and governance did not just emerge spontaneously and unprovoked from the landscape, but were produced through a negotiation of social, political, cultural as well as scientific factors. The chapter showed how Gabrielle Hecht's (2012, 6) post-colonial approach to the *history* of 'nuclear things' can be applied by geographers to examine the official construction of nuclear space. For example, the chapter demonstrated that those with power were able to decide the official boundaries of nuclear space, enforcing what is and is not 'nuclear'.

The resulting geographically-emplaced power structures, witnessed in the Zoning and management of Chernobyl, can be likened to a spatial 'strategy' (de Certeau 1984), and provides the strategic 'grid' upon which everyday life takes place. This first empirical chapter concluded by invoking de Certeau's metaphorical view from a skyscraper. From this dominant vantage point we could see the grid's official spaces, but were less able to glimpse the nuances of everyday life in the distance down below.

Following the assertion that 'territory takes on a meaning through the everyday practices and experiences that take place within and beyond it' (Brenner & Elden 2009, 366), the next chapter descended de Certeau's tower, and started to explore everyday tactics of resistance. It built upon the idea of a constructed nuclear space, and demonstrated how this official nuclear geography does not entirely dominate the lived experience of Chernobyl's post-atomic landscape. Instead, the chapter demonstrated how people are able to informally negotiate their marginalized circumstance through adopting unofficial (and sometimes illegal) practices that can be framed in terms of de Certeauian tactical resistance; as 'clever tricks of the "weak" within the order established by the "strong"' (de Certeau 1984, 40).

Informal scrap metal collection for example, conspires to blur the boundaries of official nuclear space, and contests the rules of Chernobyl's governance. The illusionary certainties of the Exclusion Zone's geography are questioned by embodied trespass into (and out of) this formalised and exceptional space - its borders becoming especially translucent through the material extraction of forbidden goods. Here, we saw how transferring metals from the 'nuclear' to the 'non-nuclear' sphere makes the nuclearity of the material 'disappear' - wiping away its previous geographically-enshrined nuclear status as it unofficially enters the formal economic market. It has been revealing to look at informality through the lens of a major technological disaster, where health and place interact with the other normal social and economic factors of marginalization. The focus on informal activity in this thesis builds upon a growing field specializing in informal economies (see Williams et al 2013; Morris & Polese 2013, 2015), contributing new perspectives on risk and health (Davies & Polese 2015).

These informal practices take place, it was argued, in the context of a 'state of exception' (Agamben 2005), where space has been made exclusionary and exceptional, and Chernobyl citizens have been cast out as post-atomic 'bare life' (Agamben 1998): exposed and abandoned yet at same time – enabled into agents of resistance. These informal activities, while not overtly political or leading to monumental change, nevertheless correspond to previous conceptualisations of resistance such as the murmuring 'underlife' of an institution (Goffman 1961), Scott's (1984) notion that resistance can be found in everyday activity, or through 'counter-conducts' (Conlon 2013) that at least open up the possibility for change. As stated, these informal understandings of nuclear spaces – and their inherent behaviours - also correspond closely, I argue, to de Certeau's notion of 'tactics'. While the use of de Certeau's theorisations of power and resistance have been successfully employed elsewhere (Hubbard & Sanders 2003), including in post-socialist spaces (Round et al 2008), the novel contribution of its use in this thesis is to combine de Certeau's ideas of resistance with Agamben's notion of *homo sacer*, to unpick the lived experience of bare life. Looking at resistance in this way, as informal activities that occur within the contours of bare life, allows a (re)reading of Agamben that permits agency and *homo sacer* to coexist. In contrast to Agamben, who proposes an all-encompassing legal-sovereign logic of power, de Certeau offers scope for (and in fact insists upon) other alternative spaces of resistance, as demonstrated through the informal activities witnessed around Chernobyl.

These informal practices occur against a backdrop of state abandonment, where insufficient welfare provision, such as the geographically allocated welfare for 'clean food', only superficially includes people within the welfare system, while in practice excluding them from any meaningful assistance. The meagre monthly compensation – not even enough to '*buy a loaf of bread*' - does nothing to alleviate the risks from contamination, yet ironically make these technological risks perfectly 'visible'. The chapter argued that this low level of welfare support actually compels participants to do the one thing that the compensation is supposed to mitigate; undertaking risky food activities, informal practices, and to rely on their own (potentially contaminated) land for survival.

Following Gilbert and Ponder (2014), the lack of welfare support can be seen as a passive or 'stealthy' (ibid; Li 2009, 67) form of violence, conceived not in terms of the physical harm done, but

in the absence of care and the lived reality of abandonment. Chernobyl citizens are not actively 'made to die', but are instead harmed through the 'letting die' violence (McMahan 1993) of abandonment, which is normalised through the law. Large numbers of Chernobyl affected people, at least if we follow their own popular epidemiology of Chernobyl risks [described in Chapter 6], have been made into *homo sacer* and allowed a 'death without consequences' (Doty 2011, 610). In this sense Chernobyl affected citizens are 'kept alive but in a state of injury' (Mbembe & Meintjes 2003) in a liminal state of exclusion, nominally included in the welfare system yet facing de facto expulsion from state protection.

In terms of Beck (1996, 2006), this case study shows that Chernobyl has indeed introduced new risks for those living near the nuclear disaster. These technological risks should be viewed as a new layer of risk that exists contemporaneously with older and more mundane risks, such as poverty. For those who live near Chernobyl, manufactured risks of nuclear disaster are a fact of everyday life. However, the choice of case study - focussing on marginalised communities near the Exclusion Zone - does not account for those of a higher economic and social position who were able in the years after the disaster to relocate to safer places. This missing section of the Chernobyl story, which was beyond the scope of the empirical research, would account more closely to Beck's notion that the wealthy and powerful are more able to purchase safety from technological risk (Beck 2006).

The many photographs that were shown to me of deceased loved-ones, such as those of Dasha's sons, were a popular epidemiology made visible; each family photograph an informal declaration that exists irrespective of formal understandings of environmental risk. As revealed in Chapter 6, participants share a belief that Chernobyl is an extremely dangerous hazard, listing a variety of illnesses and personal experiences of bereavement linked directly to living and working in a nuclear landscape. And yet, despite a universally held view that radiation is deadly, a more nuanced relationship with place and risk has also emerged. For example many people compare themselves favourably to the 350,000 environmental refugees (Ministry of Emergencies of Ukraine 2012) who were voluntarily or forcibly relocated after the Chernobyl accident. It is the detachment from the land itself that was repeatedly cited as the cause of the evacuees' supposed deaths, '*not radiation*'. This emphasises the

importance of place to people who live near Chernobyl - that the dislocation from the place of home, however (officially or unofficially) contaminated that place may be, is considered more deadly than staying put. Risk constructions were also shown to have been formed in relation to memories of other traumas (inherited or personal) such as the Great Patriotic War. Biographical narratives that similarly 'reference[d] bodies as both subjects and objects of state power' (Petryna 2002, 64) were used to make sense of Chernobyl's complicated and unknowable risks.

The chapter showed that the land is seen as a resource that is vital to survival, in both a material-economic or functional way, but also in an emotional sense, evoking bucolic metaphors that rooted people into their landscape. Following calls from Cresswell (2004), attention to these metaphors can help gain a deeper understanding of people's relationship with place. Evacuees became 'uprooted trees' destined to wither in the unfamiliar soils of dislocation and severed social networks. Likewise participants framed themselves as potato-bugs or 'Chernobyl Hedgehogs', reclaiming the abject, and embedding themselves metaphorically into the landscape. Place also serve to 'protect' their localities from harm, with halo effects shielding gardens and household plots from the wider (and acknowledged) health threats from Chernobyl. '*Our village is not polluted*' would be a common expression, followed by stories that emphasise the dangers of Chernobyl. The influence of place attachment on risk understandings can be seen through Heidegger's notion of 'dwelling' (1971) – the idea that to really *know* a landscape you must live with it (Cresswell 2004). Through this dwelt understanding of local spaces, micro-geographies of risk have merged. These unseen (by formal understandings of the Chernobyl landscape) and unofficial spaces of contamination nevertheless shape how people interact with their local geographies. Like with the scrap metal extraction in Chapter 5, this chapter demonstrates that alongside the official narrative of Chernobyl are other ways of understanding nuclear space that defy the dominant construction of space and power relations. Counter to the official governance of nuclear space, with its certified borders, zones and half-lives, are a world of other interpretations, meanings and behaviours – an informal geography of Chernobyl - that subtly resists the official governance of space, sometimes occurring in 'spaces that cannot be seen' (de Certeau 1984).

7.2 Moving Agamben out of the camps

> "In the Atomic Age upon which the world is now entering, the use of constitutional emergency powers may well become the rule and not the exception."
> (Rossiter 1948, 297; cited in Agamben 2005, 9)

Clinton Rossiter, writing here at the very start of the 'Atomic Age' in the 1940s, can be seen as prescient in relation to how the world's worst nuclear disaster at Chernobyl would one day be governed. The official landscape of Chernobyl – at least the one seen from on top of de Certeau's skyscraper - is composed of what Anderson and McFarlane might call a 'constellation of elements' (2011, 125); an assemblage of checkpoints, rules, borders, guards, exclusion zones, maps, and permanent governance from Ukraine's *Ministry of Emergency*. A material and legal confluence of strategic nuclearity, partitioning the landscape between 'included' and 'excluded' space, and allowing Chernobyl to be framed as a post-nuclear 'space of exception' (Agamben 2005); certain places becoming officially nuclear, and the rest of Ukraine being cleansed through (dis)association in a process described in Chapter 4 as *nuclear absolution*. With this state of exception certain activities are outlawed, movements prohibited, populations banished, and individuals cast outside the de facto protection of the law; exposed not only to radiation but to the 'stealthy violence' (Li 2009, 67) of state abandonment. In this way individuals affected by Chernobyl can be viewed as '*homo sacer'* (Agamben 1998), as people who can be harmed without consequence, exposed to the twin plight of radiation and poor governance (Davies 2013).

The formal and exceptional nuclear geography of Chernobyl however, should not be viewed as a Foucauldian 'total institution' (Foucault 1975), but an assemblage that can be informally (and subtly) opposed using 'chance offerings of the moment' (de Certeau 1984, 37) such as the illegal extractions and dealings we witnessed in Chapters 5 and 6, which help negotiate the vulnerabilities of bare life. In this way – through de Certeau – we can open up spaces of exception to be places of *empowerment*, where marginalised individuals are able to tactically resist bare life, not due to the *absence* of the sovereign but due of its very presence: the close proximity of the rules, official spaces, and materialities of the Zone reveal 'fragments, cracks, and lucky hits in the framework of a system' (ibid)

that can be expertly exploited by those with the necessary local knowledge, social networks or alternative risk understandings. State actors too, through bribery and connections become embroiled in these acts of 'small agency' (Honkasalo 2009), thus provoking us to (re)consider who exactly 'is' the sovereign when we talk about the lived experience of the state of exception?

While Agamben describes the camp as the quintessential place of bare life and the state of exception, geographers have followed suit, using Agamben's theoretical framework to explore bounded spaces such as refugee camps (Ramadan 2012), internment centres (Bailey 2009) and prisons (Moran et al 2012). The investigation from this thesis suggests that we should look beyond the narrow confines of official spaces of exclusion to see the everyday workings of *homo sacer* and exclusion emerge. Those who live just outside of the Exclusion Zone in Ukraine are still exposed to the wider impacts of Chernobyl, and those who are nominally included within the Chernobyl welfare system remain excluded from any meaningful protection. While previous uses of Agamben by geographers have been very useful in analysing the power dynamics of bounded spaces (such as the camp), this thesis extends Agamben beyond the barbed wire of these camps, to reveal the lived experience of de facto exclusion and bare life.

7.2.1 Exclusion through Inclusion

Moving the theory forward, Chapter 5 suggested that we need to look beyond a strictly legal and political perspective to see how bare life is actually experienced (and resisted) in the everyday. We saw for example how despite Chernobyl citizens being nominally 'included' in the welfare system in a legal logic, they remain outcast from any meaningful protection in a de facto sense. Therefore they can still be regarded as bare life – held in a state of exclusion through (ostensible) *inclusion.* Agamben in contrast - focussing wholly on the legal and political – talks of the state of exception as resulting in 'inclusion through exclusion' (Downey 2009, 111) i.e bodies held in a relationship to the sovereign realm only in the sense of their exclusion from it (for example the precarious extra-legal situation for Jews in Nazi-occupied Europe). But with this case-study we can see a slightly different pattern of inclusion-exclusion emerge. With Chernobyl, the actual workings and experience of the law mean individuals can be legally 'inside' yet effectively outside sovereign protection: not so much 'being-

outside, yet belonging' (Agamben 2005, 35) but rather – through inadequate welfare protection or recognition - being *legally* inside the sovereign's realm, yet not belonging at all (and becoming 'abject'): an exclusion that exists despite the law, not because of it.

This rereading of Agamben allows us to do two things. Firstly we can extend bare life into spaces that have previously been off limits to Agamben's theorizations, such as marginalized groups who are officially 'documented' (in a titular sense) and legal, yet still face discrimination, abandonment and de facto expulsion from the 'fraternity of the social sphere' (Downey 2009, 109). Secondly, this new reading of Agamben also allows us to reconsider how bare life might be countered, permitting us to sidestep the problem of how resistance fits in with Agamben's theorization of sovereign power and moving away from viewing resistance to *homo sacer* as something that must always take an overtly political stance (lip-sewing, political protests, murals etc.). In this way we can follow de Certeau's (1984), Scott's (1988) and Honkasalo's (2009) notions of resistance, to recognise how the situation of bare life might be negotiated subtly, partially and within the framework of everyday life. We have seen in the final empirical chapter how informal risk understandings, which are socially produced, fit in with this picture of everyday resistance, as participants engage with place in ways that the state did not intend. Unofficial risk understandings (and practices) are a tool with which to enact agency in bare life and resist the formal governance of nuclear space.

Previous uses of Agamben have tended to follow his all-encompassing legal view of sovereign power, to focus on individuals who are undocumented, such as refugees and illegal immigrants. The implied assumption of this use of Agamben is that legal status and documentation (i.e being nominally 'included') equates to the transcendence from bare life into a fuller citizenship. However this thesis argues that we must look beyond this legal and political framing of sovereign power to access the lived experience of exclusion. Legal inclusion, documentation, and de jure entitlements hide a world of de facto abandonment, which a focus on everyday life and de Certeau's (1984) framings of tactical resistance allow us to reveal.

This thesis demonstrates the importance of place for coping in everyday life. Even when places become contaminated by the processes of modernity, people still rely on these places as essential to their wellbeing and even to their survival. The thesis also demonstrates how those with power struggle to see the everyday perspective.

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Appendix 1

Visualising Chernobyl

Outsider Images: Professional Photographs

The following photographs were made by documentary photographer Alexey Furman and myself over the course of three years of qualitative research. It pictures some of the ethnographic vignettes highlighted in the thesis and adds context . For higher quality images and wider selection please see thomdavies.com/portfolio/war-without-war/ (*'Chernobyl: "war without war"'*) and www.alexeyfurman.com/gallery/ra/ (*'Radiation Next Door'*). Alexey's photography from this project has received several awards including Best of Show in International Photography Awards (2013) in New York, and an honourable mention in the 'Prix de la Photographie' international photography competition (2013), Paris.

Following these twelve professional 'etic' images are further examples of the participant photographs made by people using disposable cameras.

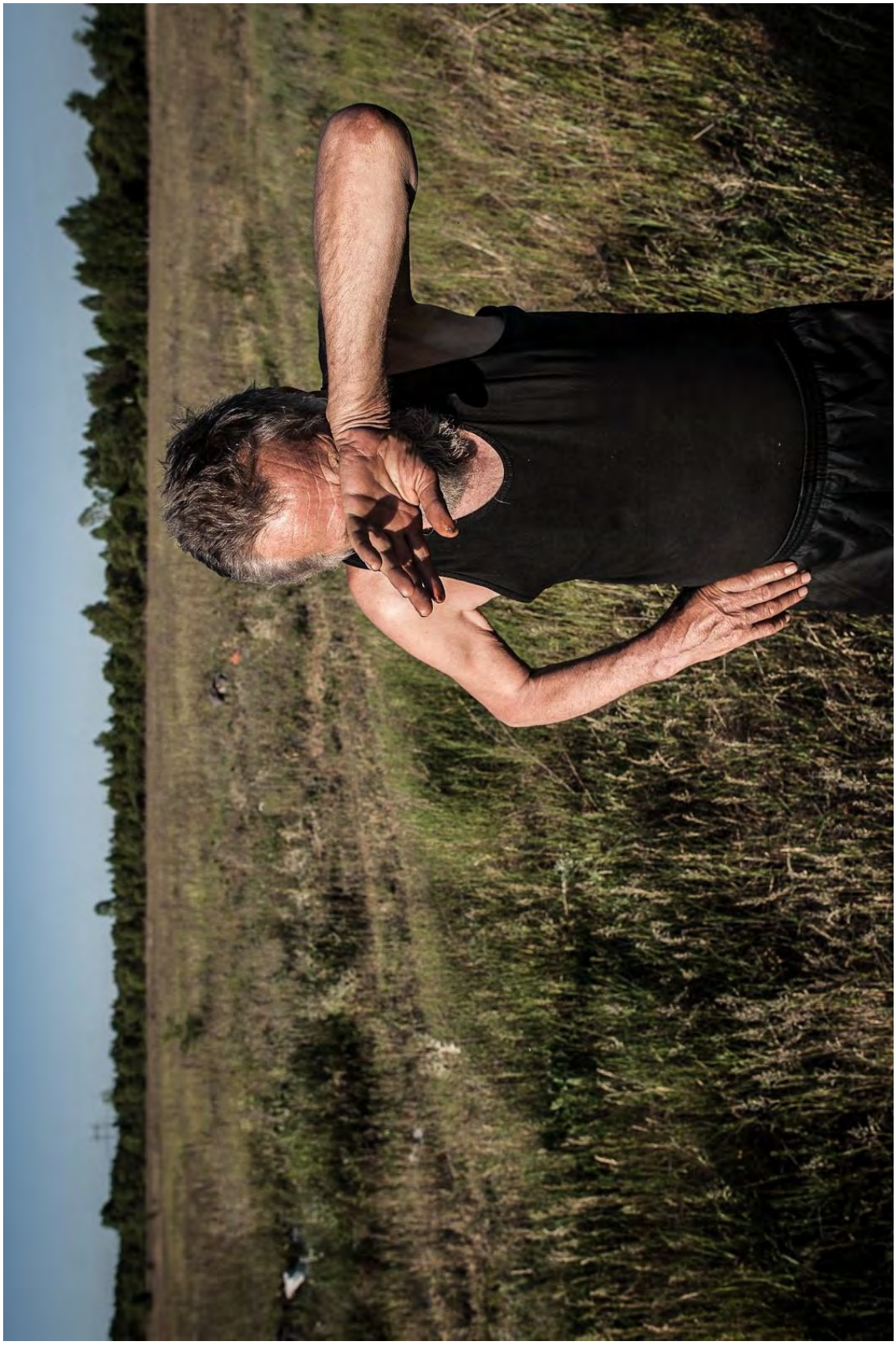


Image 1: A man stands in a field behind his house which stretches out towards a bank of trees. The tree line marks the start of the Exclusion Zone. At the top left of the frame you can see a dormant electricity pylon that used to transport energy from Chernobyl to other parts of the USSR. Photograph by Alexey Furman.



Image 2: Fourteen year old Sergei launches himself out of the water while swimming in a river that runs through the Exclusion Zone. As with Image 1, in the background are dormant electricity pylons inside the Exclusion Zone. By Thom Davies



Image 3: A shop near the Exclusion Zone. Like in many parts of Ukraine, alcoholism is a huge issue in this region, especially for men. Many people claim alcohol 'protects' them from radiation, particularly vodka and red wine. This has interesting connotations from a Douglas (1961) perspective of the cultural production of dirt, where risk limiting activities reinforces social and cultural (patriarchal/gendered) norms. By Alexey Furman.



Image 4: A ‘Chernobyl widow’ holds a photograph of her late husband who worked as a liquidator after the Chernobyl disaster. In the background can be seen the domestic memorial to her husband that sits in the entrance area of her flat in Kyiv. By Thom Davies



Image 5: Alexey's photograph of a baby being Christened in the only working church inside the Chernobyl Exclusion Zone. *'There is no radiation here'* the Priest tells Alexey after the ceremony.



Image 6: Two former liquidators sit in a house to the West of the Exclusion Zone discussing their memories of working in the Zone. By Alexey Furman



Image 7: A woman rests her arm on her fridge in her kitchen. On the walls are posters of various political figures from opposing sides of (pre-revolution) Ukrainian politics. On the right is an old photo of Yulia Timoshenko from 2006; top left is a photo of former speaker of the house and socialist politician Oleksandrovych Moroz; below him is the current mayor of Kyiv Vitali Klitschko; and bottom left is a image of deposed President Viktor Yanokovich. By Thom Davies



Image 8: An elderly lady dries her eyes while talking about Chernobyl and her memories of the disaster. By Alexey Furman



Image 9: An antique family photograph (made using the Autochrome Lumière technique) surrounded by other family photographs – from various ages and generations – are displayed in a house in a Chernobyl border village, and hung with a traditional hand-stitched cloth. Family photographs like these often provided catalysts for interesting conversations and narrative based discussions. By Thom Davies



Image 10: An elderly lady cuts grass in her garden in a village near the Chernobyl Exclusion Zone during the summer. During the winter months she lives in her small flat on the outskirts of Kyiv. By Alexey Furman.



Image 11: A portrait of a liquidator, while he recounts his experiences inside the Exclusion Zone. By Thom Davies.

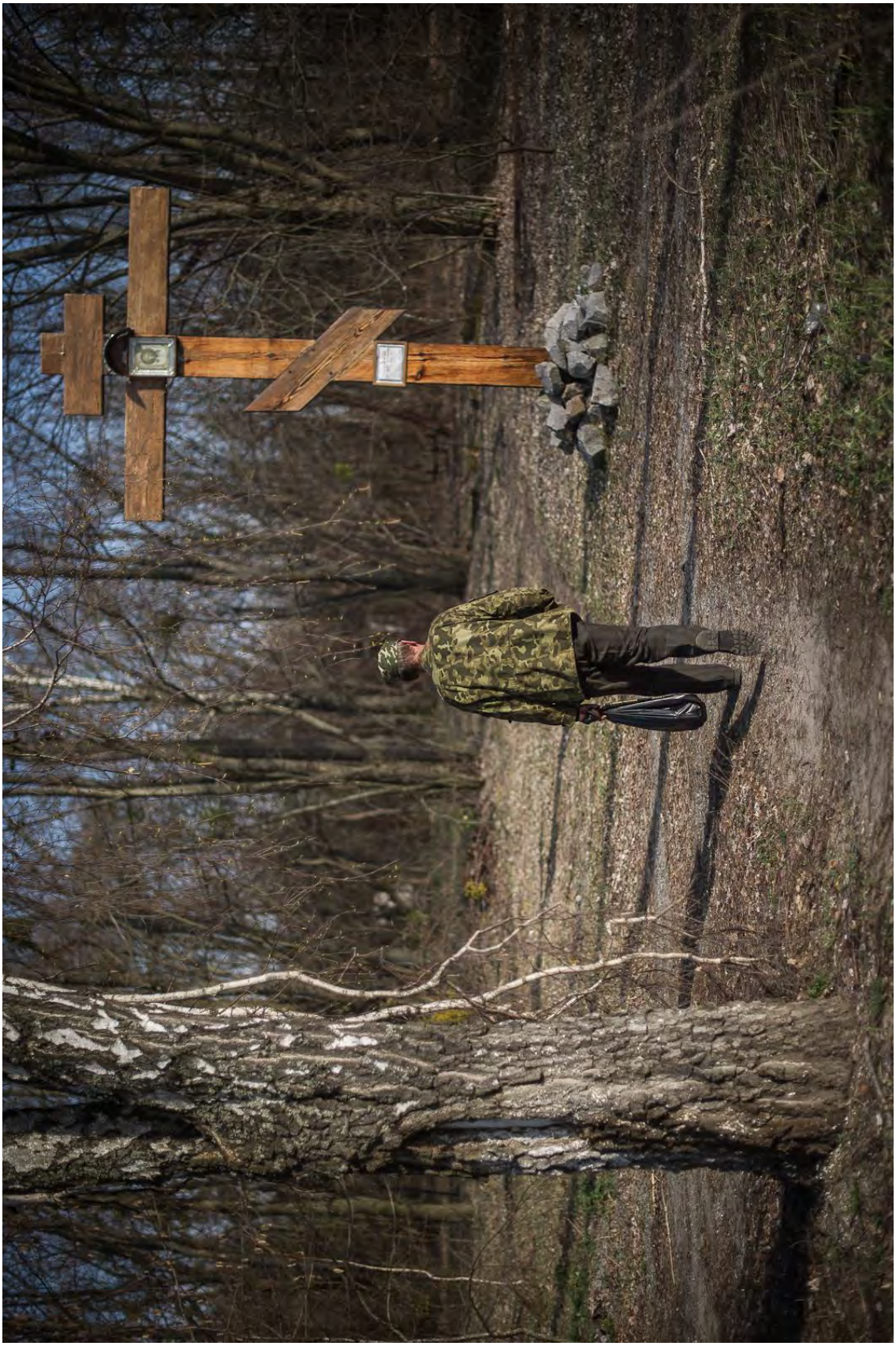


Image 12: A man walks past an Orthodox cross in the town of Chernobyl, inside the Exclusion Zone. By Alexey Furman.

Insider images: Participant Photographs

In addition to the participant photographs contained within the main body of the thesis, what follows are a series of photographs made by the research participants. These thirteen photographs are just a selection of the hundreds of images made during the research.



A photograph of prints of some of the participant photographs made during thesis research.



Photo 1: A participant makes a photograph of a road sign that says ‘Chernobyl’ as he leaves the Exclusion Zone. Every year those with relatives buried inside the Zone are allowed to visit the graves of their families, if they apply for special permission.



Photo 2: Fish hanging in an outhouse to dry so they can be stored. Unlike the illegal fishing operation discussed in Chapter 6, these were caught by a research participant from a lake outside of the Exclusion Zone.



Picture 3: Residents of Orane village attend a memorial service on 'Victory Day', 9th May 2013. Next to the Priest the mayor of the village (interviewed in Chapter 5) reads from a red book.



Picture 4: An abandoned house near the Chernobyl Exclusion Zone. Abandoned houses are a common site even outside of the official Exclusion Zone.



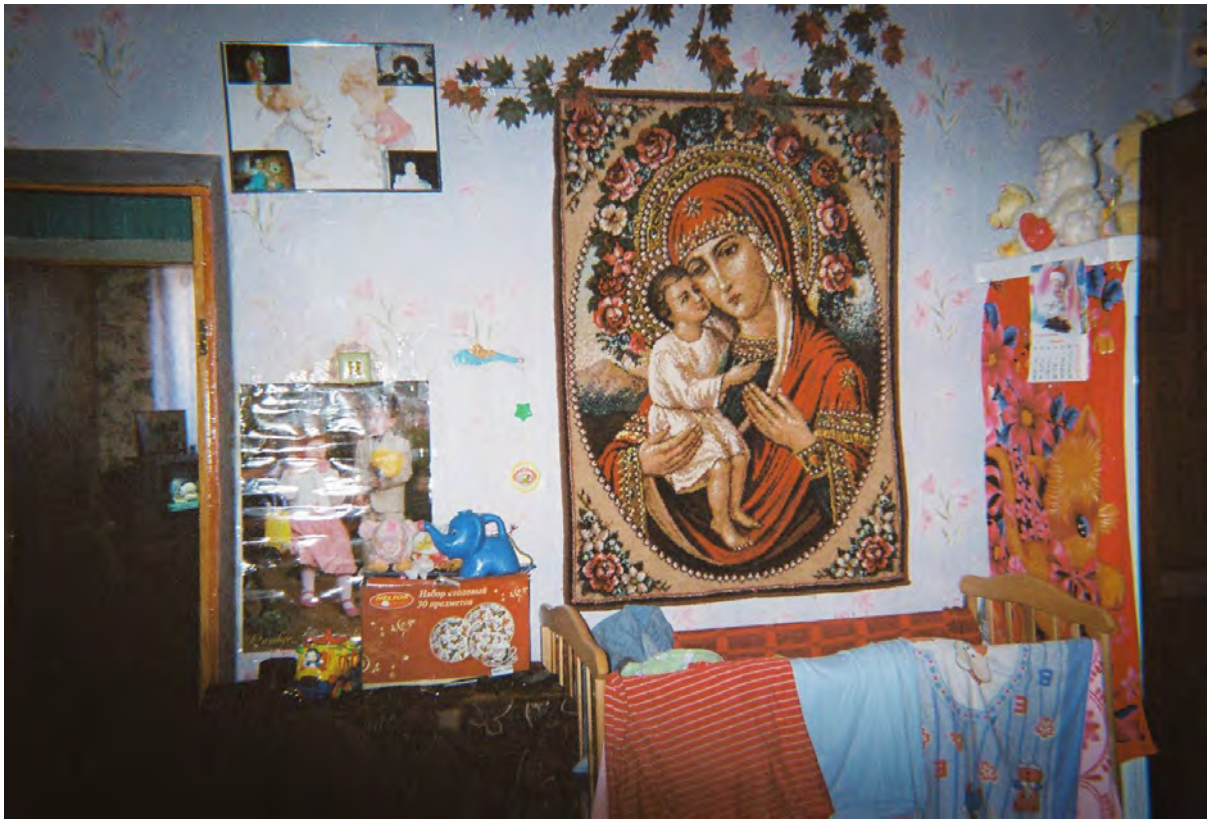
Picture 5: A guard dog patrols the front garden of a house near the Exclusion Zone. Many of the photographs made by participants were of their pets.



Picture 6: The grandmother of a research participant sews part of a traditional embroided 'rushnyk'(рушник) ritual cloth while sitting outside her home.



Picture 7: Two grave plots with small food offerings left on top of the graves during the Easter '*provody*' (проводи) celebrations where families visit their forbearer's cemeteries and eat and toast to their memory. By the evening many of these offerings are collected by local gypsies.



Picture 7: A child's bedroom decorated with a rug displaying Roman Catholic iconography. Most people in this region are Orthodox Christian, though some villages such as Krasilivka are predominantly 'Old Believers', practicing a belief system that dates back to a schism in the Russian Orthodoxy from the 17th century.



Picture 8: The son of research participant climbs into bed. As he is unemployed he contributes to the household through informal activity discussed in Chapter 5.



Picture 9: An empty beer bottle stuck on a fence in front of a house with a collapsed roof. Alcoholism is a widespread problem in this region, with many maintaining that it helps reduce the negative effects of radiation.



Picture 10: The scene at the Easter '*provody*' celebrations in a village near the Chernobyl Exclusion Zone.



Picture 11: A man walks his horse near a cemetery on the outskirts of Orane village. The photographer partially cover's the lens with their finger.



Picture 12: Pigs in the back yard of a house near the Exclusion Zone. Each family kills one or two pigs a year, around Easter and Christmas.



Picture 13: One of the research participants takes a photograph of another.

Appendix 2

Media Outputs

The thesis research has been featured in several non-academic outputs, including a photography exhibition with 'Portrait Salon'[132] that toured gallery spaces (between 2014-15) in London, Bradford, North Wales, Edinburg, Birmingham and Bristol. Photographs from the research have also featured in two 'Images of Research' competitions in 2011 (nominated), 2012 (winner) and 2015 (competition pending).

Further outputs included a blogpost on the Independent website in 2012[133] which criticised the horror film '*Chernobyl Diaries*' for its cultural insensitivity. The blog post was titled '*The real Chernobyl diaries: notes from Ukraine*' and upon publication I received an angry email from the film director Bradley Barker in response. Having already spent long stretches with communities who live near Chernobyl I found the way Chernobyl and Ukraine was being represented by the film as at best insensitive and even Orientalist in approach. Rotten Tomatoes rate the movie at 19%.

With the help of the photographer Andrew Jackson I am in the early stages of putting together an Arts Council bid to curate an exhibition in the Midlands Arts Centre to mark the 30th anniversary of the disaster. The most substantive media output to date has been the following Independent article:

[132] To see all of the images selected for this touring exhibition visit http://www.portraitsalon.co.uk/
[133] To read the Independent blog visit http://blogs.independent.co.uk/2012/07/11/the-real-chernobyl-diaries-notes-from-ukraine/

Article published in The Independent Newspaper



Screenshot from main page of the independent website[134]

The article marked the 28th anniversary of Chernobyl and was written in the context of the ongoing Euromaidan revolution where the world's attention was (quite unusually) fixed on Ukraine. In terms of 'research impact' the article was read by over 150,000 people, shared heavily on social media, and was the lead article on the independent website for two days.

As with most media articles, I did not retain sovereignty over the title (or sub-heading), which was the choice of the editor. In fact the initial title chosen was misleading, misreading an interview quotation in the article and suggesting my argument was that Chernobyl was overly deadly: "*Ukraine's other crisis: living in the Shadow of Chernobyl – where victims receive just 9p a month* ***and the cemeteries are the size of cities***". After a quick email exchange with the editor this was changed, but not before it had been picked up by pro-nuclear blogs refuting my supposed claim. The headline eventually ran:

[134] Full text on the following page. Available online here: http://www.independent.co.uk/news/world/europe/ukraines-other-crisis-living-in-the-shadow-of-chernobyl--where-victims-receive-just-9p-a-month-and-are-left-to-fend-for-themselves-9293832.html

"*Ukraine's other crisis: living in the Shadow of Chernobyl – where victims receive just 9p a month and are left to fend for themselves"*

As part of the article the Independent also published a photo gallery by myself and Alexey Furman. Article text printed overleaf.

Ukraine’s other crisis: Living in the shadow of Chernobyl – where victims receive just 9p a month and are left to fend for themselves

Twenty-eight years after the world's worst nuclear tragedy, forgotten victims are preparing for more pain.

THOM DAVIES SUNDAY 27 APRIL 2014



A young girl plays on her grandparent’s small farm near the edge of the nuclear Exclusion Zone

The yellow and blue flag of Ukraine is an imaginary landscape. It supposedly symbolizes the endless fields and blue skies of a Ukrainian rural idyll.

Gazing north near the border with Chernobyl, one can be forgiven for being taken in by this fantasy; the yellow unploughed fields stretching out to the horizon. The illusion is broken however, by a distant strip of green conifer trees and disused pylons where the sky meets the earth. Beyond these trees lies the Exclusion Zone.

“We are like bugs on a potato” explains Viktor, standing on his field that backs on to the barbed wire fence of Chernobyl’s nuclear Exclusion Zone: “These bugs are not afraid of anything and nor are we, if you try to kill them - they are still alive, and we are the same”. Like many others who live on territory officially deemed contaminated by Chernobyl, he receives just 9p per month in compensation to ‘buy clean food’. “What can I do with this?” he asks, “It won’t even buy a loaf of bread”.

As the turmoil in Ukraine intensifies and the physical violence enacted upon Ukrainian citizens by bullet, truncheon or Molotov cocktail continues, another more stealthy form of violence continues to impact the lives of thousands of people - that of state-abandonment. This weekend marks the 28th anniversary of the world’s worst nuclear tragedy. With Ukraine’s economy on its knees and Russia at its throat, it is Chernobyl’s marginalized citizens who rely on dwindling compensation that are placed at the thin edge of this geopolitical crisis.

Earlier this month Russia announced an 80% increase in gas prices for Ukraine. Likewise, the IMF loan offered by the West in the wake of Crimea’s annexation has come with many strings attached, namely a long list of austerity measures that make the 2010 deal with Greece seem like a philanthropic gesture. Kiev’s floundering interim government are curtailing social services and slashing benefits whilst a depression on a scale not seen since the collapse of communism seems inevitable.

Ukrainians, one in four of whom are already below the poverty line, lie sandwiched between two geopolitical antipodes and are set to feel the full force of these austerity measures and gas hikes. Perhaps no group more so than the exposed victims of Chernobyl.

“This is war without war” explains Masha, who lives a few minutes walk from the forbidden spaces of the Zone – a cordoned off area of north-central Ukraine roughly the size of Oxfordshire. Like Viktor, she too receives virtually nothing in terms of compensation. Her tiny state pension - barely enough to make ends meet – is set to decrease further in the first round of President Yatsinyuk’s austerity measures. “We have a lot of diseases too” she adds “I can’t sleep now”.

But she, like many others, has other ways of coping. She grows her own food in the contaminated soil, “cucumbers, potatoes, you name it” and even illegally sneaks through holes cut in the fence around Chernobyl, deep into the radiated forests to gather mushrooms and berries. Some she pickles in jars for the uncertain year ahead, and others are sold on the streets of Kiev. The police sometimes catch her in the Zone but they are often more interested in eliciting bribes than arresting her.

Others collect scrap metal from the Zone in their bid to survive an absent state and failing economy. “If you can, then you steal something, if you cannot steal something – you are hungry” explains one man who regularly ventures into the forbidden forest. Selling the abandoned detritus and

infrastructure of the Zone, left by the thousands of forced evacuees 28 years ago, has become an informal lifeline to many people who live in the shadows of Chernobyl.

People affected by the tragedy have been exposed twice – once to the invisible threat of radiation, and once more to a state that does not care. Liquidators for example, who risked their health in the wake of nuclear meltdown to clean up the contaminated landscape, today regularly struggle to claim the compensation they deserve.

“Do I have to die to prove I am a liquidator?” asks one woman from Kharkhiv, desperate for compensation to help buy medicines for illnesses she relates to Chernobyl. Their damaged biologies and psychological scars are testament to a state that has failed them.

Estimates of fatalities from the disaster vary wildly, from the IAEA’s figure of 4000 up to nearly one million. But any number hides the real human cost of the tragedy: the lives ruined, the dismembered communities, and the invisible poison of stress.

“You should see the cemeteries there” Viktor tells me, referring to the places where the 350,000 Chernobyl evacuees were sent, “they are like cities”.

There is a widely held belief that those who were forcibly evacuated have died from stress. As one evacuee tells me, who now lives 500 miles away from her childhood home in the Exclusion Zone: “We are like a tree that has been uprooted, and taken from our own land. There’s only a small chance that this tree will survive and grow in the new soil.”

Recent months have seen Lenin statues forcibly removed from Ukraine’s urban landscape, but the nuclear legacy of the Soviet Union is harder to erase. It is an inheritance that consumes around 5% of Ukraine’s budget each year, a cost that the post-IMF government will be targeting in its path towards austerity.

The dust will eventually settle on the ongoing unrest in Ukraine. Borders may even change. But long after the world turns away from Ukraine, people like Viktor and Masha will still be there, struggling on the edge of a forgotten tragedy – like bugs on a potato, attached to the soil.

Photographs by Alexey Furman and Thom Davies

Thom Davies is a human geographer at the University of Birmingham, School of Geography, Earth, and Environmental Sciences. He has been researching a CEELBAS funded PhD about Chernobyl for the last four years, working in contaminated spaces in Ukraine and interviewing people who survive in the shadow of Chernobyl. Follow him on twitter @ThomDavies

Alexey Furman is a photojournalist based in Ukraine who works on long-term documentary projects and has more recently covered the Euromaidan protests in Kiev. Follow him @alexeyfurman

Academic Publications

This section of the appendix contains the current published academic outputs from the thesis research:

2013 Article published in 'International Labor and Working-Class History'

This article focussed on the visual aspects of Chernobyl and the use of participatory visual methods. It corresponds closely to some of the methodology section of this thesis, as well as empirical findings made throughout the chapters.

A Visual Geography of Chernobyl: Double Exposure

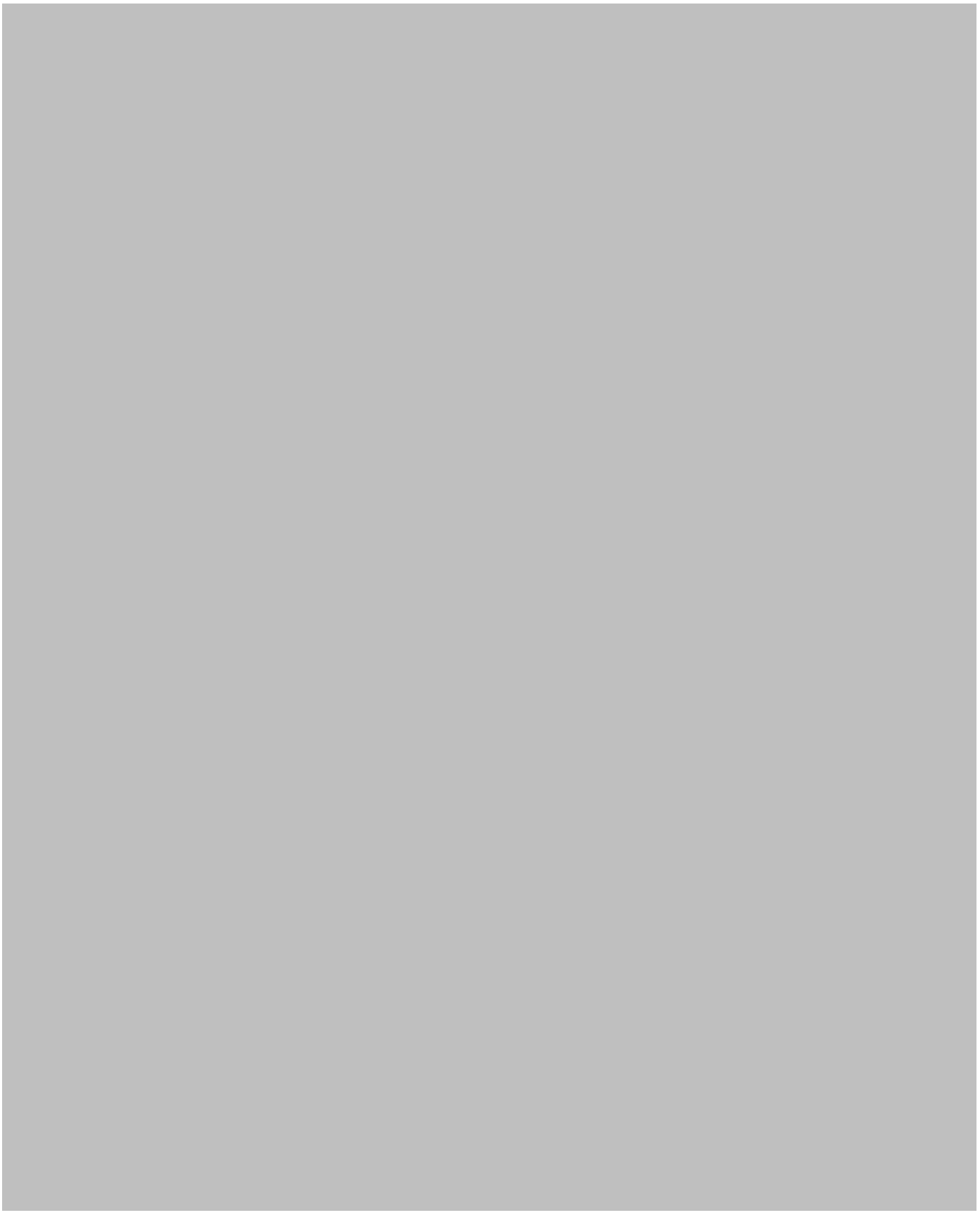
Thom Davies[*]
University of Birmingham

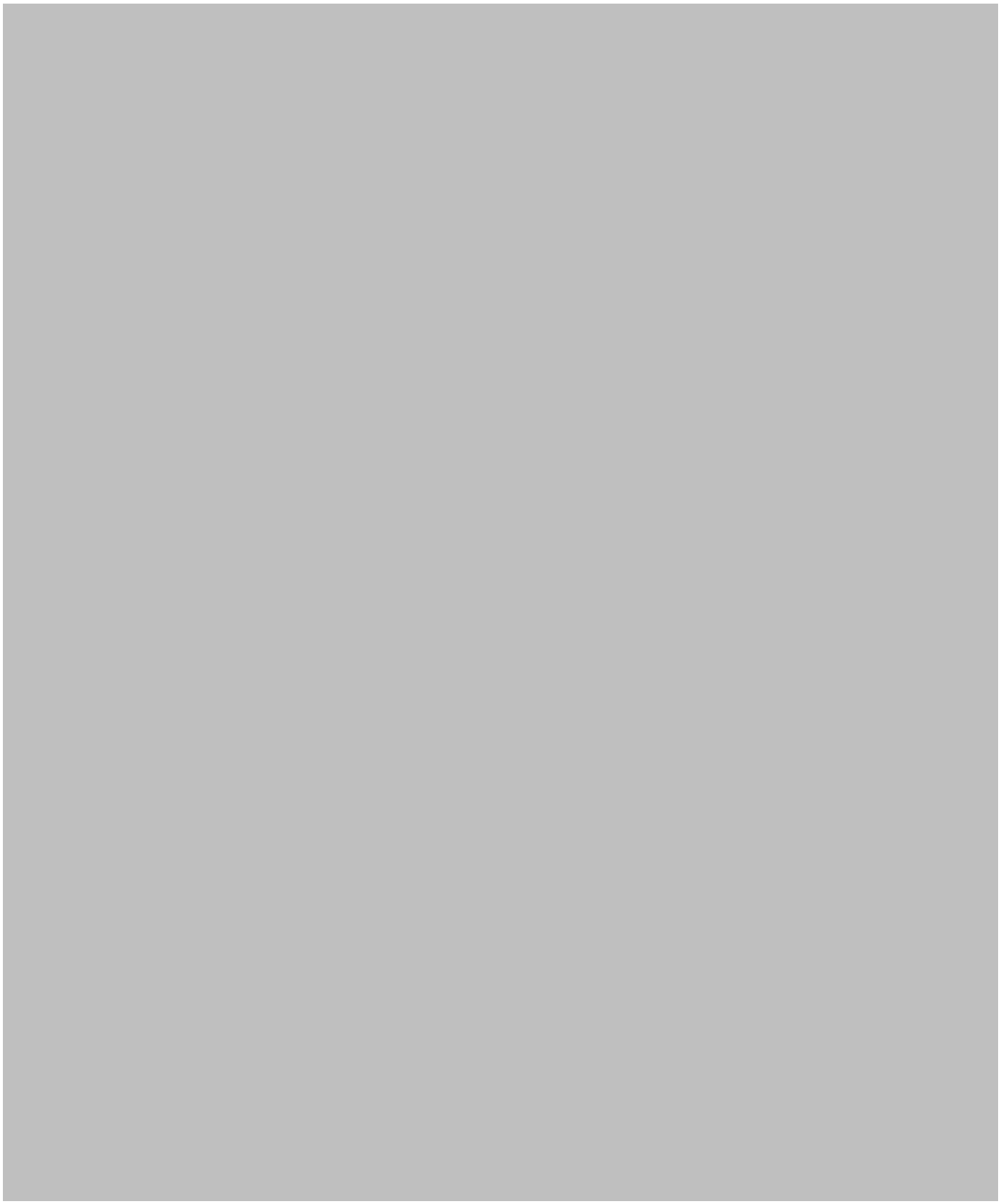
Abstract

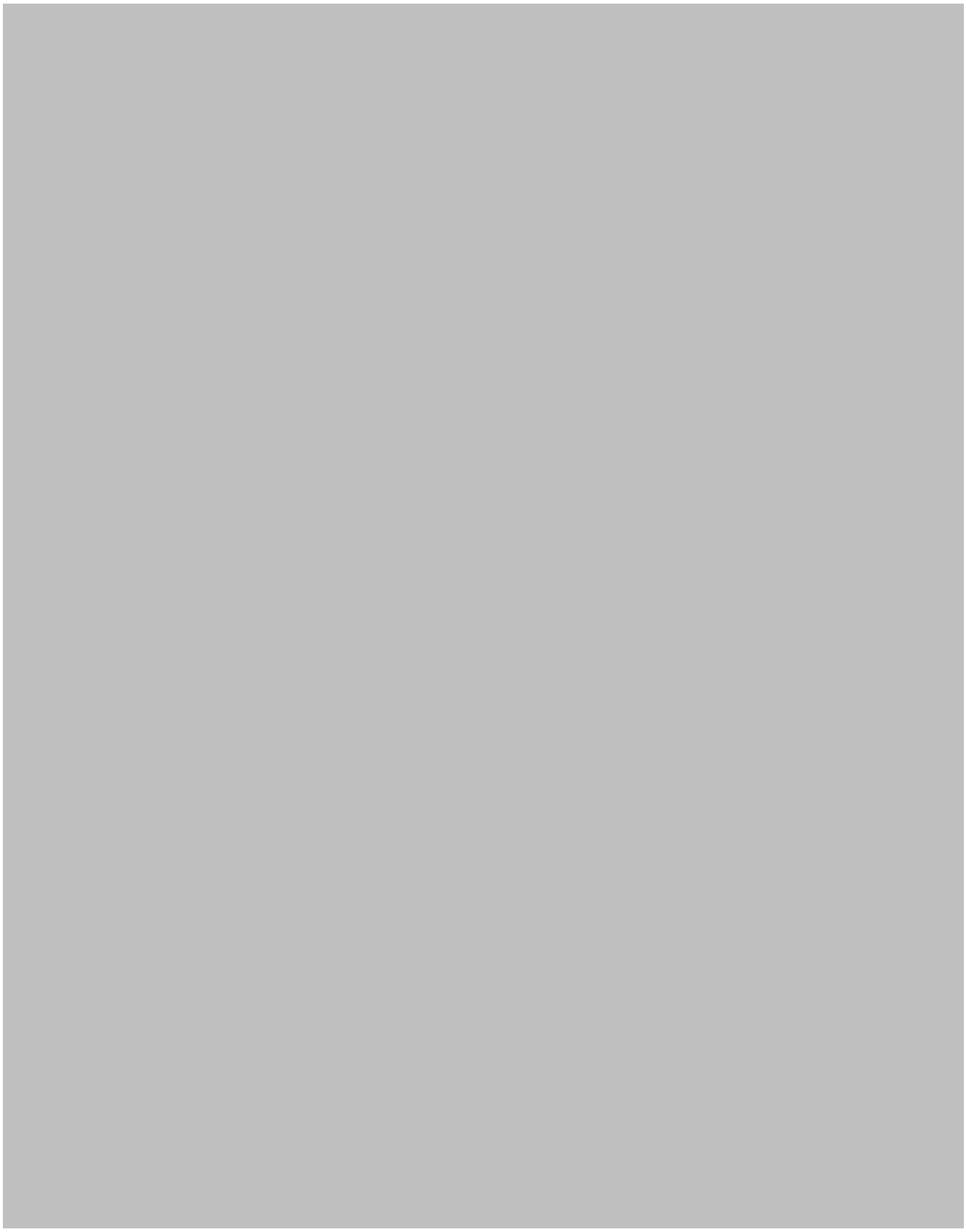
This article investigates the memories and lived experiences of those who dwell in the deindustrial landscape of Chernobyl in north Ukraine. Taking a visual approach to an invisible issue, the article explores the use of photography as a research tool to examine the 'hidden spaces of everyday life' in the shadow of Chernobyl.[1] The article finds that many people have suffered a 'double exposure': once from radiation and then again from the failures of the Ukrainian state. While these communities are exposed as "bare life"[2] to the risk of nuclear pollution, they also contest official conceptions of radiation through local knowledge, shared memory, and informal activity. The article interrogates the complex ways people perceive, negotiate, and come to terms with the ever-present but unseen menace of radiation. Through these memories, images, and lived experiences of the marginalized, we can begin to make the invisible threat of radiation appear more tangible. Finally, the article provides a short discussion about the use of participant photography in researching the invisible.

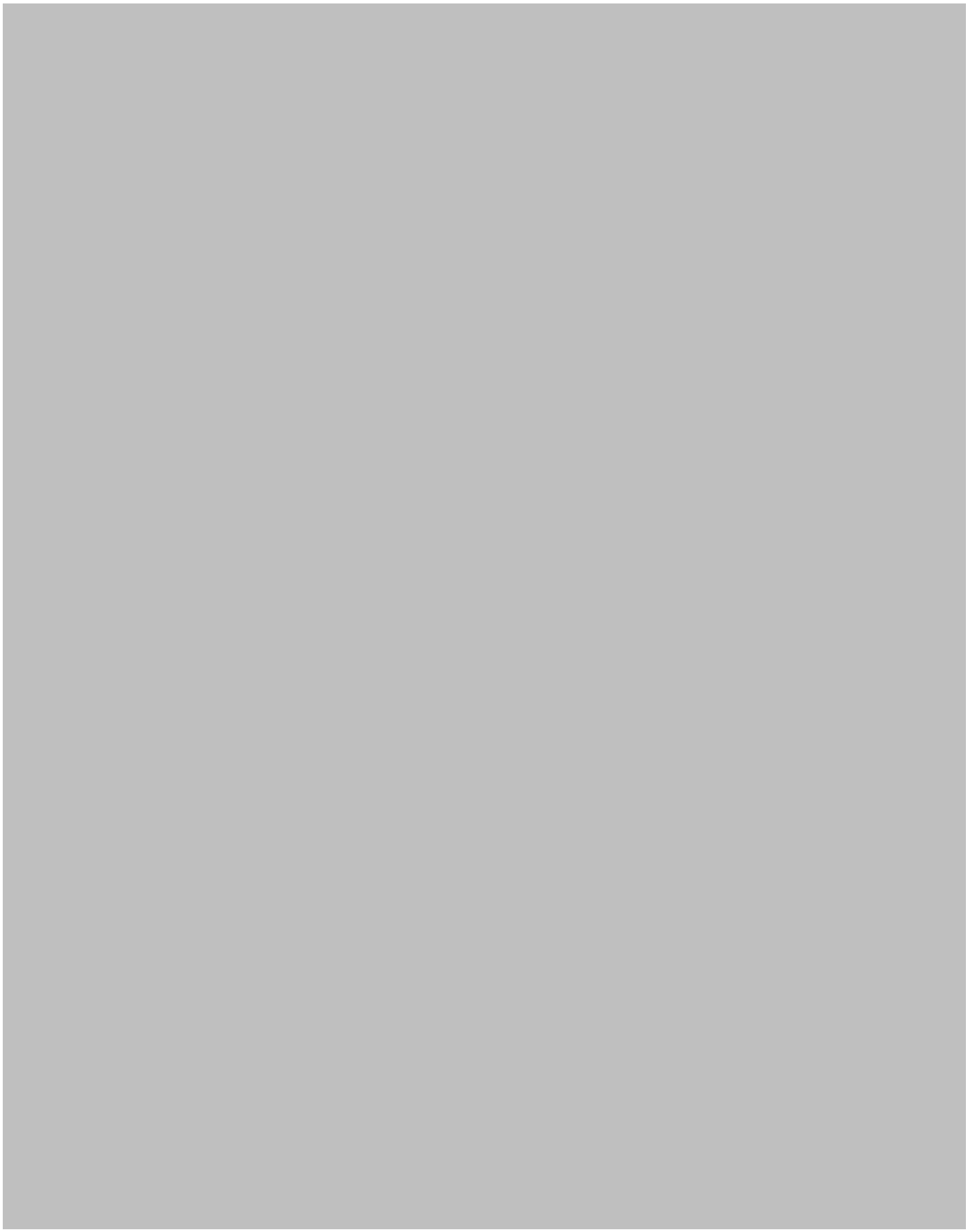


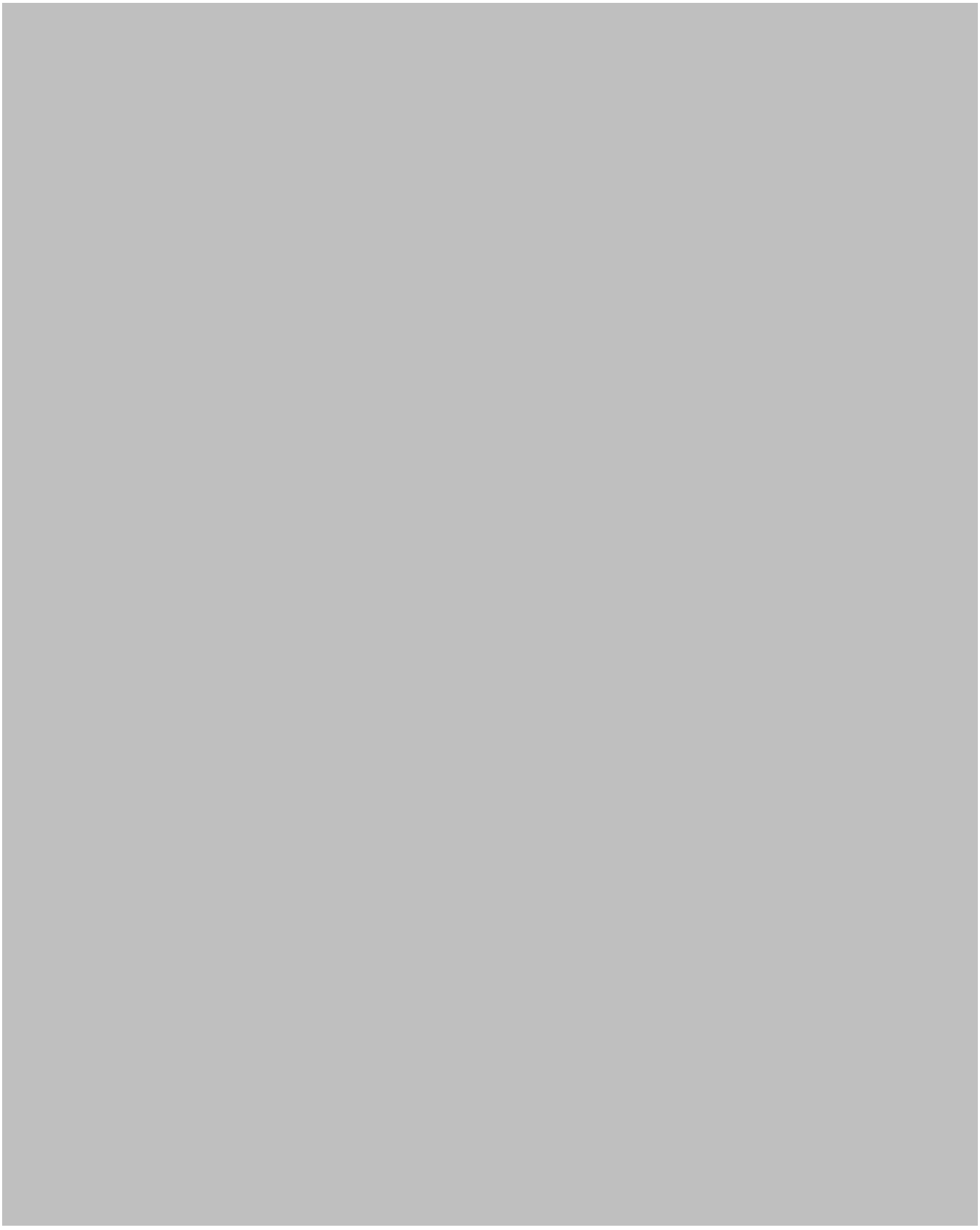
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No. 84, Fall 2013, pp. 116–139
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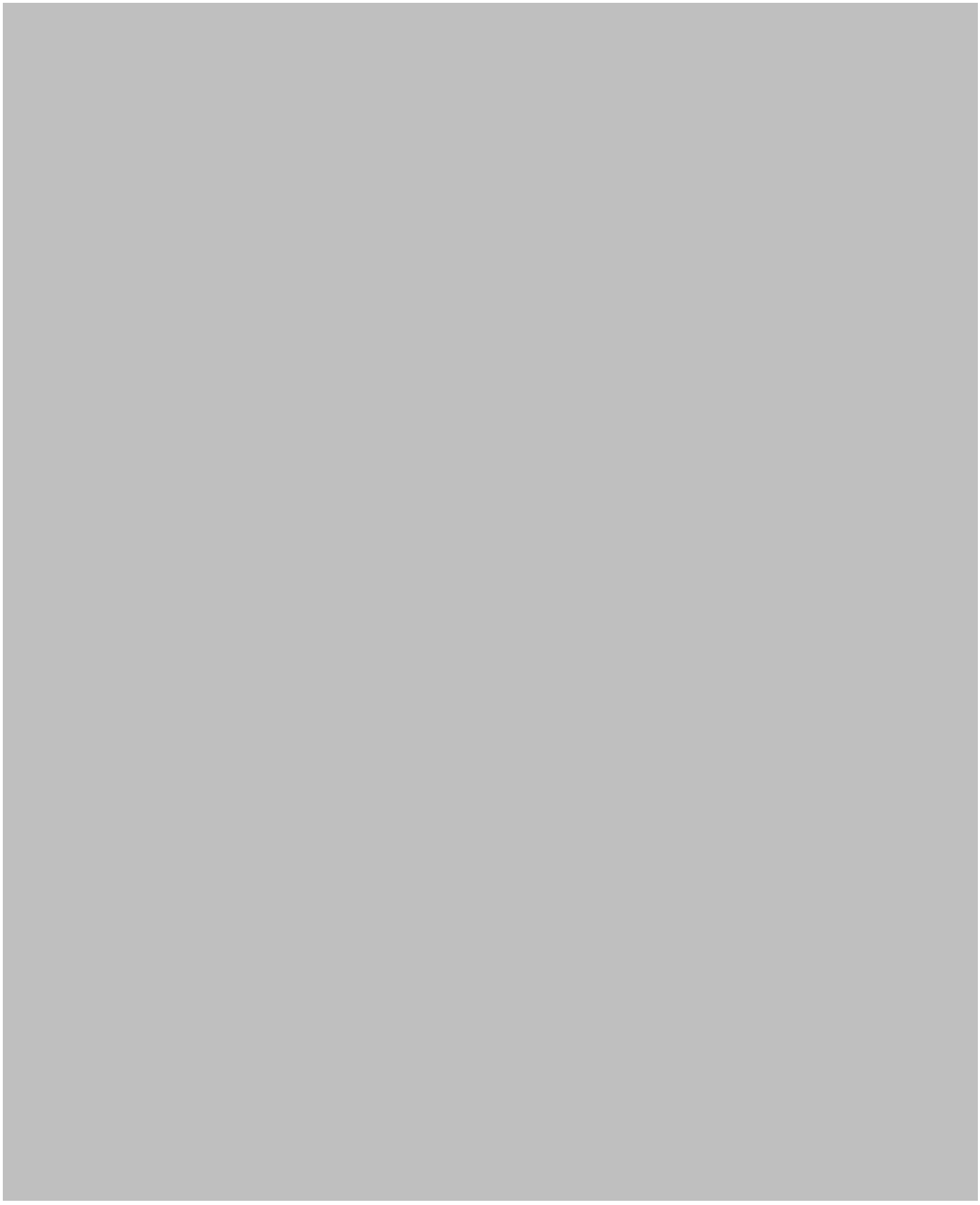


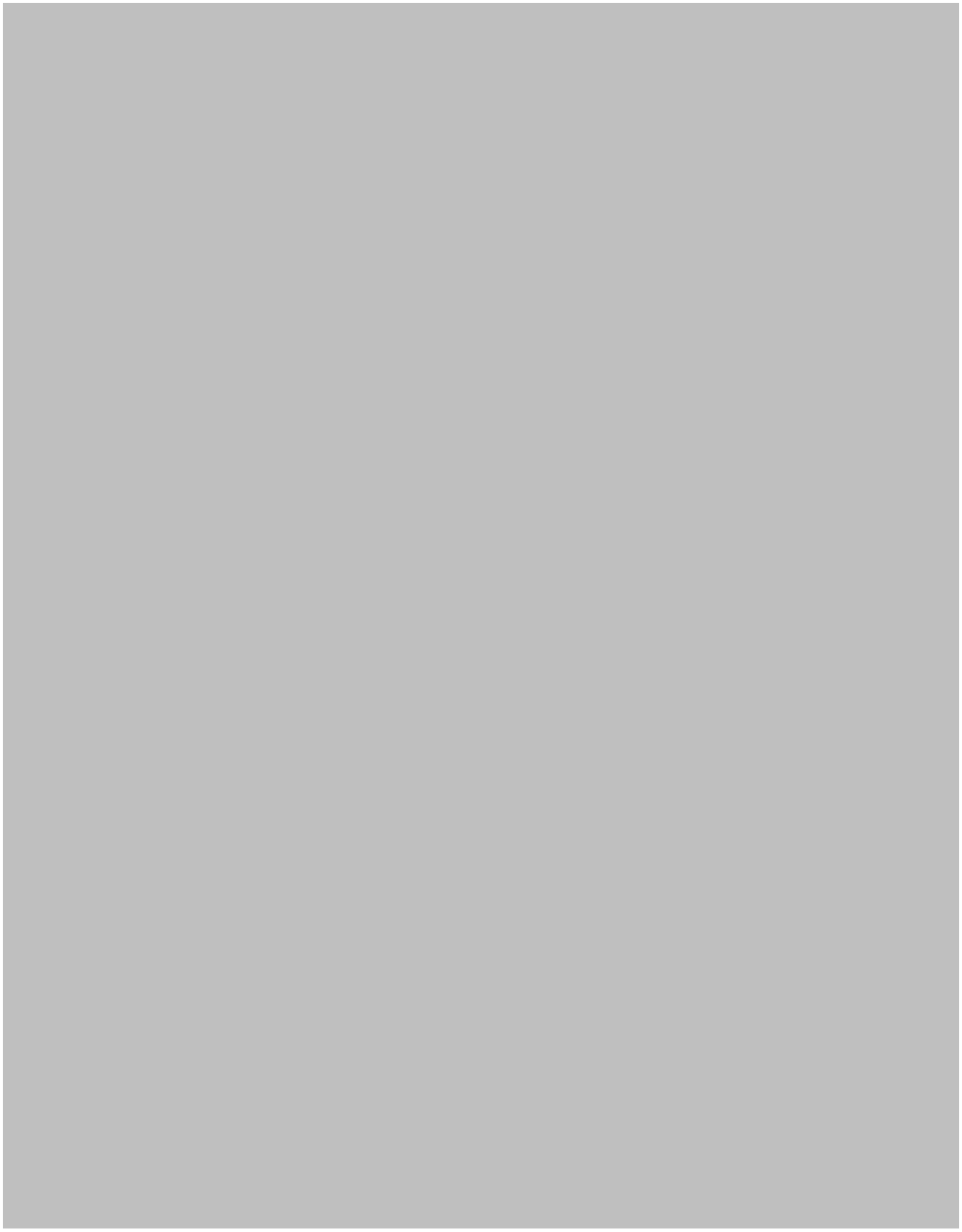


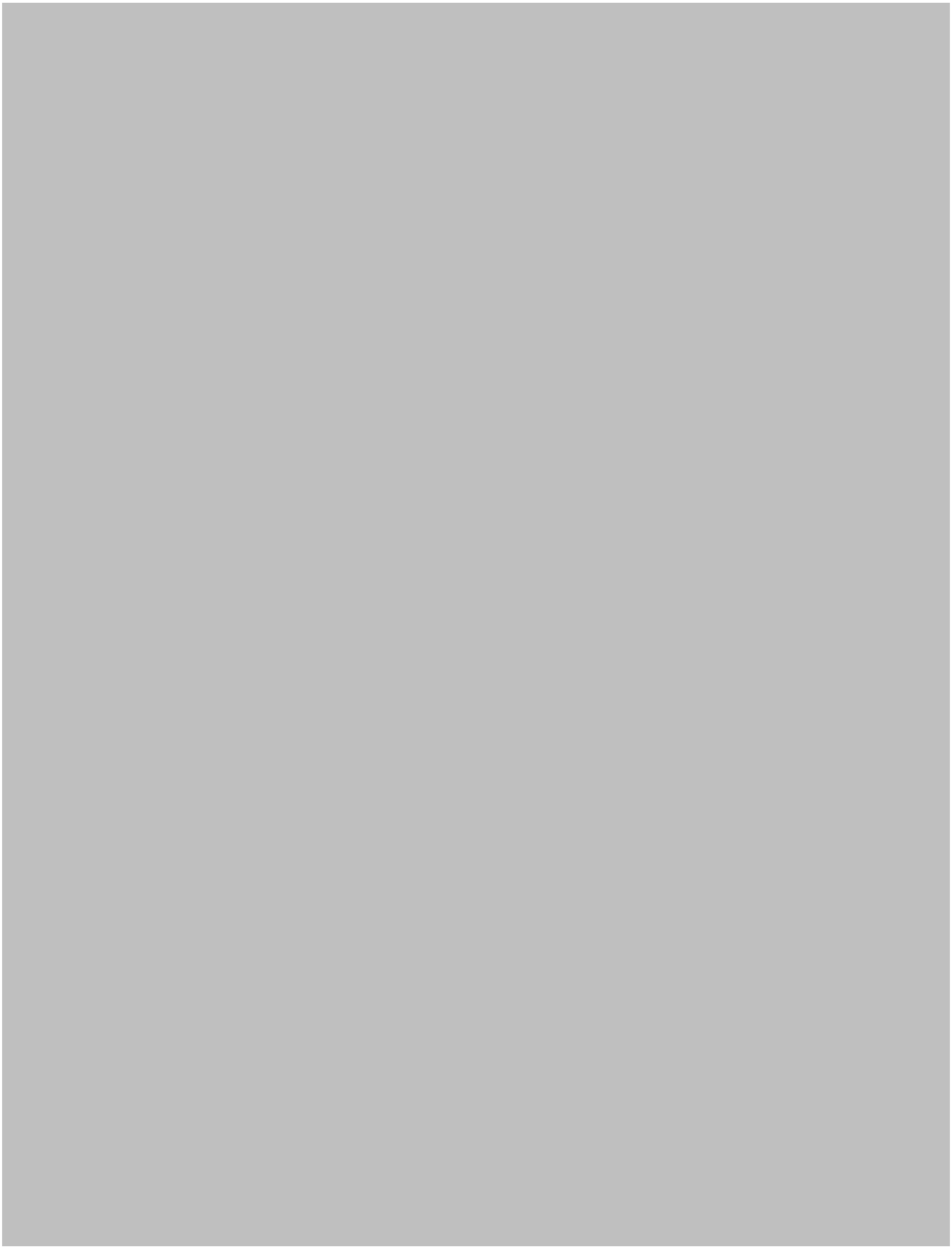


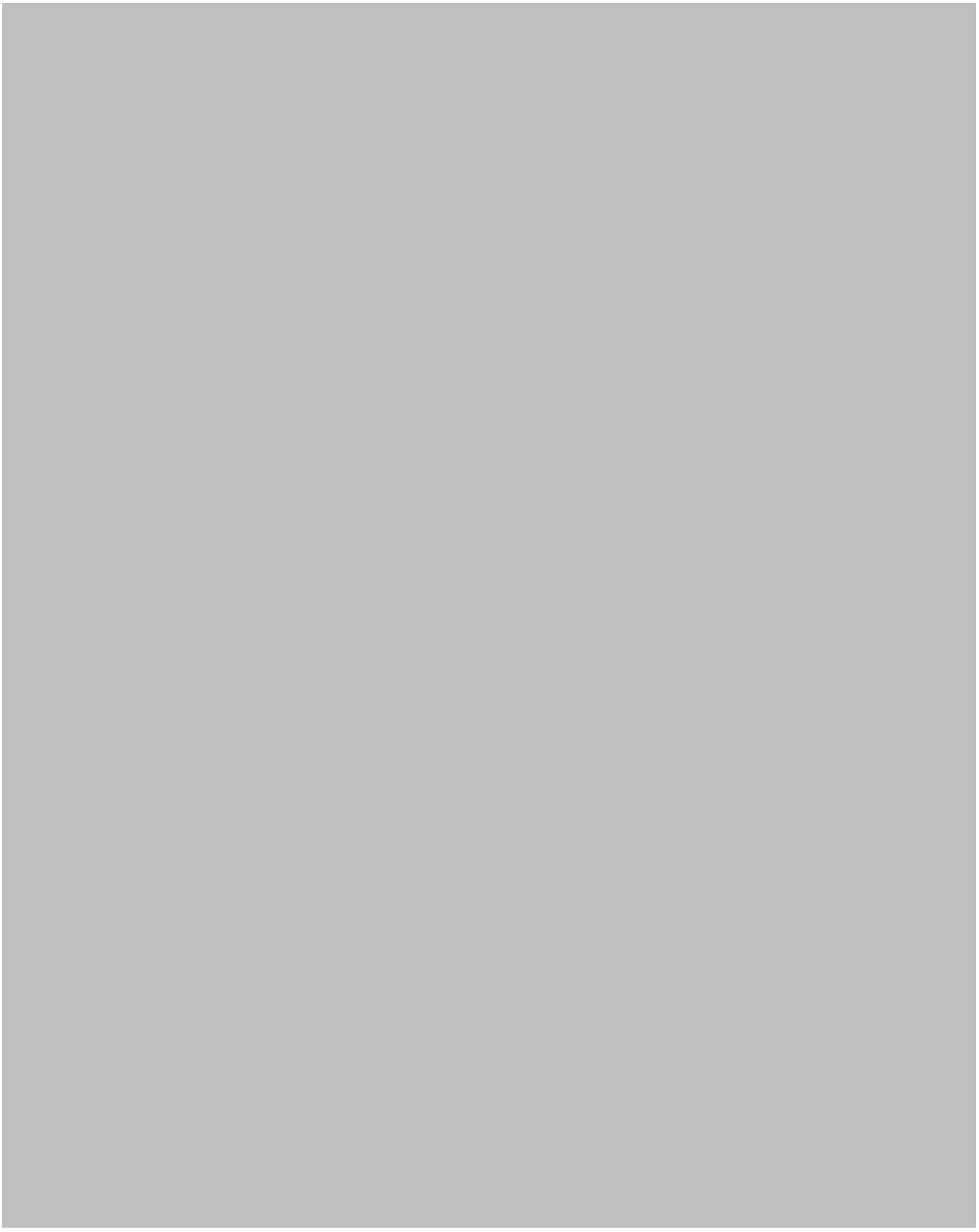


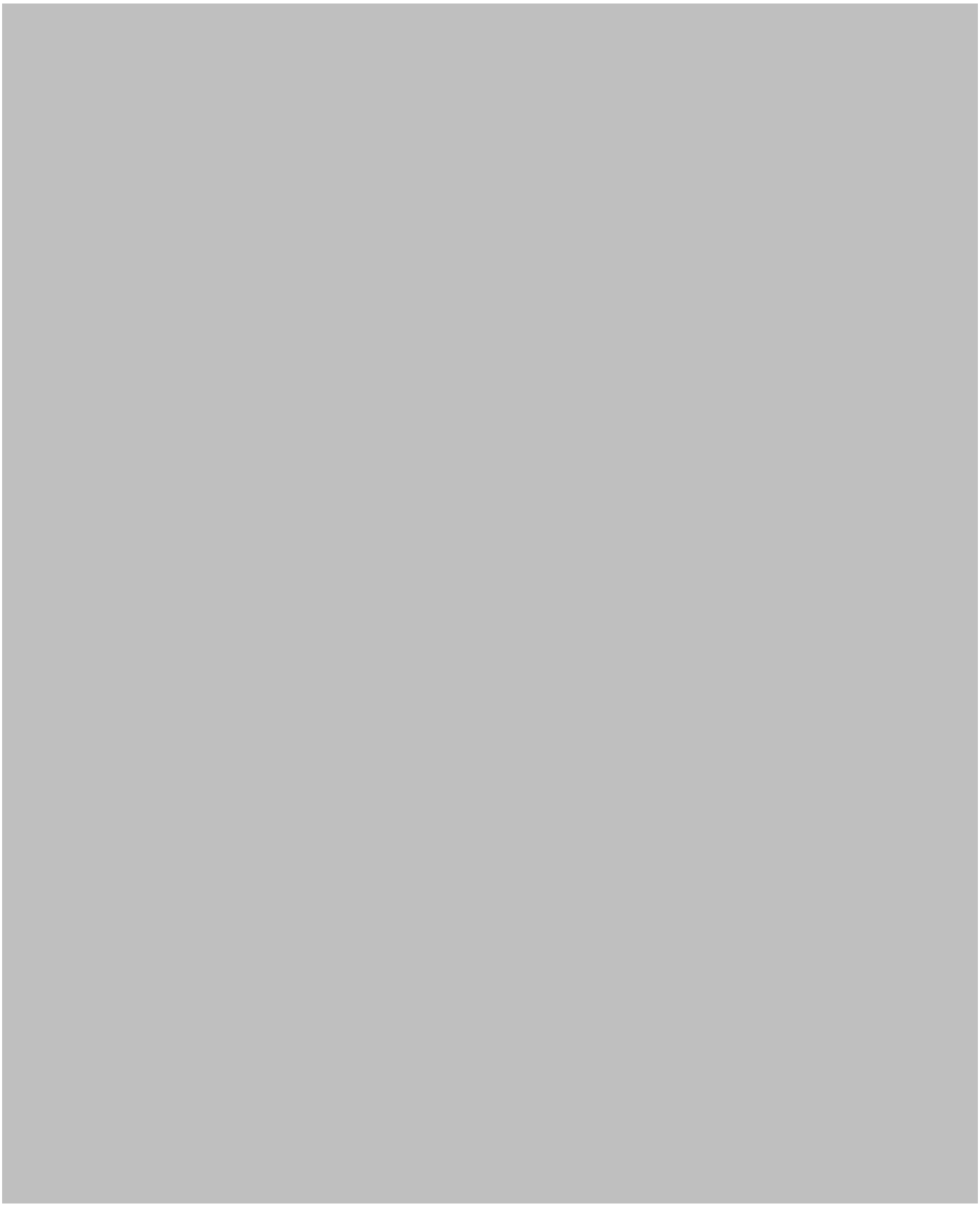


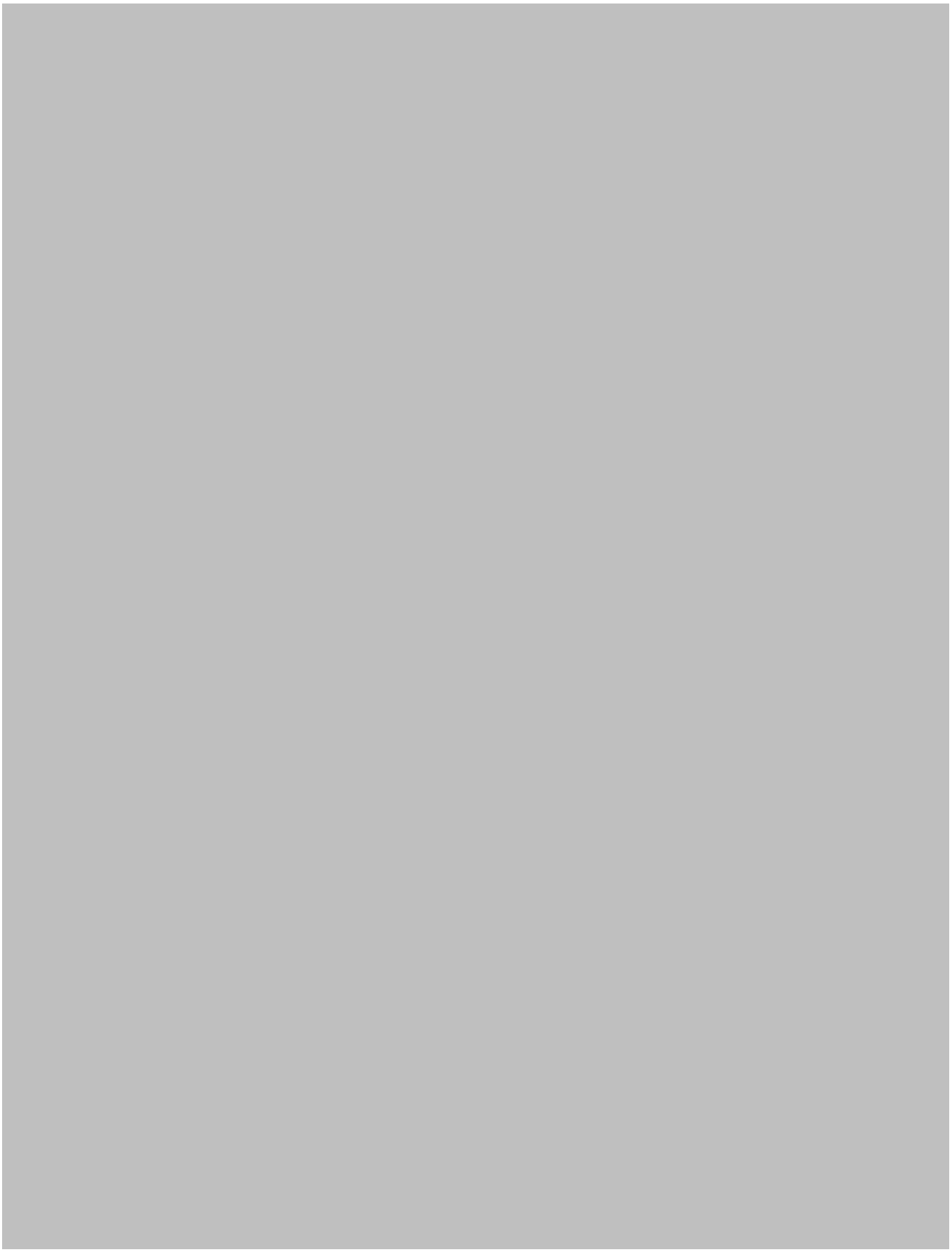


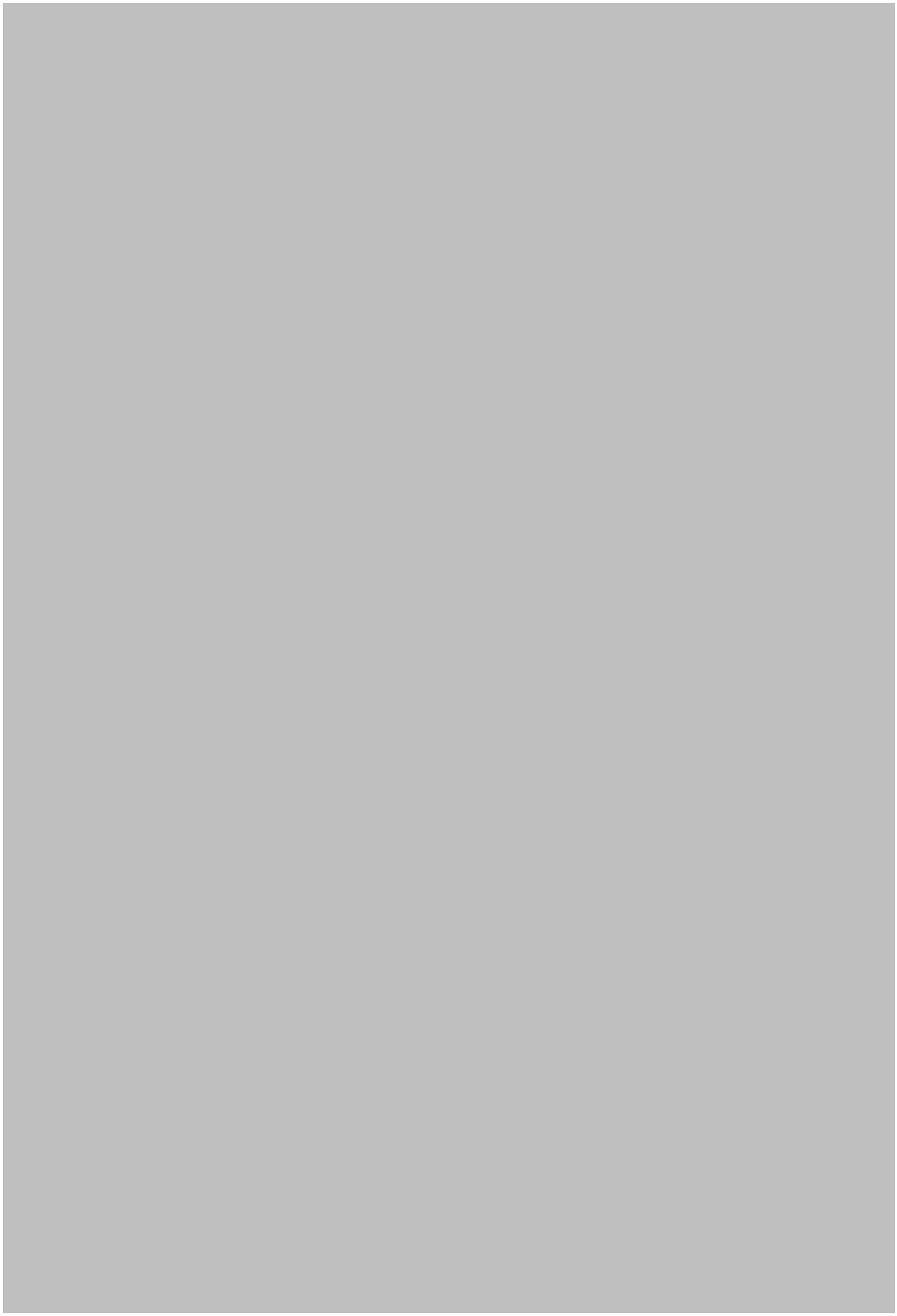












2015 Article published in the 'Journal of Eurasian Studies' based on thesis research

As written in the abstract, this article focuses on the use of informality to negotiate the lived experience of de facto state-abandonment, lack of welfare support and risk. It corresponds closely to Chapters 5 and 6 of the thesis.



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Informality and survival in Ukraine's nuclear landscape: Living with the risks of Chernobyl

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ABSTRACT

Recent debates on informal economic activities have partially switched away from a pure monetary logic towards a more complex one, embedded in long term relations and reckoning with non materialistic paradigms. The role of informality in certain aspects of people's lives has however, remained largely unexplored. This article uncovers what happens when the state retires from (providing benefits and social services to) a geographic area and what kind of mechanisms, practices and institutions are created to make up for this. We suggest that, in the face of de facto abandonment by state welfare, and the absence of a private sector alternative, a myriad of transactions and actors can make up for this by replacing these forms of welfare informally. Our case study focuses on the nuclear landscapes around the Chernobyl Exclusion Zone in north–central Ukraine as we reveal the ways the excluded and abandoned, which we frame as post-nuclear "bare life" (Agamben, 1998), have created a mechanism of social security that is independent from the state and yet complements it. Informal, local and unofficial understandings of nuclear spaces are central to survival in this marginalised and risky environment.

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1. Introduction

In post-socialist spaces, beneath the shadows of the neon-lit signs of marketization, the informal economy remains acknowledged and vital, yet largely 'invisible'. Beyond the more obvious street-level traders and the like, most informal activity – for a variety of reasons – occurs beyond the 'panoptic gaze' of the state (Foucault, 1977). The seemingly invisible nature of this economy is suggested in the various names it is given; from 'shadow', to 'underground', to 'hidden' or 'black'. This underlying assumption that informal activity is unseen, that it takes place in 'other worlds' (Gibson-Graham, 2008: 1), is often contrasted with the Western world where, it is assumed, visibility of the economy is secured by the fact that market forces have penetrated almost every sphere of modern society (Hann & Hart, 2009; Williams, Nadin, Rodgers, Round, & Windebank, 2011; Williams & Martinez, 2014). This has been reflected in the wide literature on social transformation starting from either Polanyi (1944) or from developmentalist approaches suggesting the next alignment of new emerging powers with standards set in industrialised countries (Haller & Shore, 2005; Pieterse, 2010).

On the uphill struggle through post-socialism, however, there is an emerging school of thought suggesting that the

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route is no longer planned by neo-liberal ideas of 'transition' from *a* to *b*, nor mapped out teleologically by 'one size fits all' Washington-consensus cartography; in fact there is no 'route' at all (Burawoy, 2002; Ledeneva, 2004; Stenning, 2005). Coping mechanisms such as informal work (Stenning, 2005; Williams & Round, 2007), economies of favours (Kuehnast & Dudwick, 2004; Pavlovskaya, 2004; Polese, 2008), 'social acknowledgement' (Morris, 2012, 2011: 629), gift exchange (Mauss, 2002; Polese, 2014a), memory (Buyandelgeriyn, 2008), and social/kinship networks (Grabher & Stark, 1997; Lonkila, 1997, 1999; Walker, 2010) have not only helped navigate the post-Soviet 'everyday' (Bruns & Migglebrink, 2012; Morris, 2012; Polese, 2006a; Round & Williams, 2012; Sasunkievich, 2014). They have also, and possibly more importantly, pointed to the existence of a persistent and complete system in which 'informality is here to stay' (Morris & Polese, in press, 2014b: 1).

Whilst initially relegated to particularistic and empirically-grounded case studies, unlikely to provide normative or universalistic value to further studies, the growing amount of research and its progressive theoretical engagement has pointed to the social significance, persistence and size of informal activities (Morris & Polese, in press, 2014b; Round, Williams, & Rodgers, 2010). Indeed, such is the prevalence of these behaviours that one could argue that 'formality' could safely be concluded as an exception and 'informality' the rule (Routh, 2011: 212).

Studies on informality have rapidly grown out of their initial framework that saw an informal economy (Hart, 1973) or resistance (Scott, 1984) originating among the poor, the marginalised and the excluded (Gupta, 1995). New directions in the study of informality have suggested that it is also a significant phenomenon in richer countries, including industrialised ones (Williams, 2011) and that both winners and losers of transitions make extensive use of it (Morris & Polese, 2015; Polese, 2014b), including in political spheres (Isaacs, 2011, 2013; Kevlihan, 2012). In many respects, informal activities may be seen as complementary to formal processes or, in market logic, as occupying the niche that remained vacant because of limited action of the formal sphere (Polese, Morris, Kovacs, & Harboe, 2014).

2. Informality and (lack of) welfare

There is a growing literature discussing social solidarity, social justice and other micro-social phenomena that do not necessarily come from the state (Kuznetsova & Round, 2014; Polese et al. 2014, 2015). Post-Weberian conceptions of a state advocate several degrees of state intervention (Darden, 2008): from little – a liberal logic, where the state does not interfere in market activities but creates the instruments for control of fair behaviour – to more proactive intervention, where the state is the warrant of most economic rights and obligations.

In Western Europe, as in other geographical regions, the "ethics of austerity", enhanced by the recent economic crisis (Windebank & Whitworth, 2014), along with a wider desire to decrease public deficit, has encouraged a number of states to reduce the amount of money available for public services and enabled the private sector to penetrate previously state-monopolised aspects such as healthcare or education (Kovacs, 2014; Ó Beacháin, Sheridan, & Stan, 2012; Rogers & Sheaff, 2000; Tatar, Ozgen, Bayram, Bellí, & Berman, 2007). This process has been somehow less rapid in Central and Eastern Europe but only because it is building on a de facto process of privatisation (Harboe, 2014; Polese, 2006b) as opposed to a de jure one in more advanced economies. Traditionally, privatisation issues have been a major concern for economists or public policy specialists. Scholarship, however, has often neglected various grey situations that are, nonetheless, frequently encountered. If we see the economic and social life of a state shared between two, or in some cases three, main forces, as in Fig. 2, we can think of three situations that have been underrepresented in scholarship.

The first one is the transition between public and private services. If a state decides to privatise a service – fully or partially – then it is possible that at the end of the privatisation process, the new system will work better than the preceding public one. However, there is generally an adaptation period during which time gaps in provision may appear, sometimes lasting long enough to be more than just 'transition'. For instance some competencies might remain "uncovered" because both state and private sectors claim it is the other side's responsibility. In a second case, one can find a gap between a service that has been

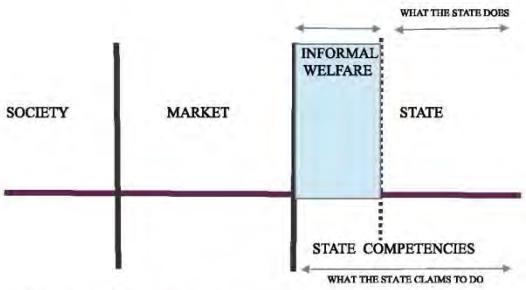


Fig. 1. Informal welfare may be forced to plug the gap between what the state and the market provide, occupying a space beyond the de facto protection of state competencies and forming a "grey zone of informal welfare" (Polese et al., 2014).

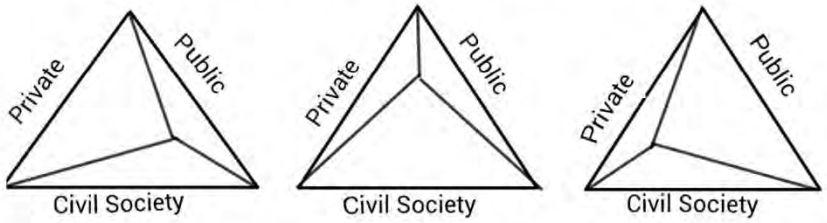


Fig. 2. Complementarity of competencies of the private, public and non-profit sectors.

promised and the way it is actually delivered. This could simply be due to bureaucratic issues, where a need is identified, money to address the need is allocated, but it takes a number of signatures and years, to unblock proper implementation. It could, however, also be due to the third situation, in which the state fails to address a given issue and simply leaves (or never enters) the game. This is the case when providing a service is too costly, or there is little interest or awareness of a given need to be addressed. The case study in this article is most closely related to the last two scenarios (Table 1).

In all three situations, citizens might become, or consider themselves 'abandoned' because they have access to little or no welfare services. Privatisation is, in some cases, a solution but it also raises questions. What would happen if the private sector provided a service at a price that was too high for a significant number of people? What happens if private sector actors do not see the advantage of occupying that niche, and leave a service tackling a particular social need unprovided?

In the recent past, situations where citizens expected or were promised A, but delivered B have resulted in a conflict that has been solved in different ways. Contestation and contentious politics is one of them, when citizens openly criticise and challenge the state, asking for a change from the status quo (Della Porta, 2009; Tarrow, 2005). Organised criminality and illegal flows are another well-studied field, with some groups taking advantage of the void of power to create a system within the system with its own rules of engagement and different distributions of welfare and benefits (Bruns & Migglebrink, 2012; O'Brien & Penna, 2007; Pinotti, 2012; Van Schendel & Abrahams, 2005). There are also cases where an initiative starts from citizens who organise in a less hierarchical structure than a mafia to provide a service, competing with the state in welfare distribution (such as Time Banks or other alternative currencies). Those actions can either be formally coordinated, such as when civil society organisations or informal groups start providing services, or uncoordinated, but still widely popular within a certain segment of a society (Koven & Michel, 1990; Mollica, 2014). We are clearly indebted to Scott's (1984) works on everyday forms of resistance when framing the approach of this article. Our question, however, starts from the possibility to apply this framework more broadly and see it not only as resistance or a survival strategy, but in a more structural way.

We start from the question of what happens when a state retires, or refrains, from (providing services to) a particular geographic area and what kind of mechanisms, practices and institutions are created to make up for this. We suggest that, in the absence of an entrepreneurial actor, be it the state or a private one, a service that is needed by a given segment of a population might end up being provided informally. To do this, this article takes the region around Chernobyl in north–central Ukraine as a case study to document the way the absence of de facto welfare protection leads to the creation of local informal markets and economic activity. In the Chernobyl region the excluded and abandoned have created a set of informal mechanisms independent from the state. While Harboe (2013) has documented the life of *Invisible Citizens*, who avoid formal institutional relations with the state due to a general scepticism towards such establishments, we here deal with those that the state has decided to avoid a relationship with. Although the provision of a small state pension paid out each month, tiny food subsidies, or the permission to live in a given place might indicate that the state has 'not forgotten' about these people, the amount of benefits received and the way this compares to the rest of the country seem to point to the fact that state support is only nominal, showing little or no difference to those who receive nothing from the state. The post-Chernobyl Ukrainian state offers only a 'Potemkin village' of welfare support – a complex web of de jure entitlements but a lived reality of de facto state abandonment.

Table 1
Table showing the causes of welfare ineffectiveness and potential consequences of welfare failure.

Causes of ineffectiveness	Reasons	Possible consequences
Transition period	Adaptation period Holes in the system	Informal economic and social practices
Gap between service	Failure to identify a need Bureaucratic hurdles in allocating money	Informal practices, there might be room for organised crime to take over some aspects
State "exits"	Service is too costly No awareness or pressure to address a social need	Organised crime, mafia structures replace the state; some informal economy develops

The choice of this case study is connected to the possibility to position Chernobyl as an example of a 'state of exception' (Agamben, 2005), where its affected population uses informal economic activity and non-formal understandings of radiation risk as a way to enact agency and subvert their post-disaster status of 'bare life' (Agamben, 1998). The state's failure to 'see' into the hidden spaces and processes of informal activity around the Exclusion Zone reveals the non-expert experience of having to cope in a landscape where radioactive danger is *invisible*. This radioactive landscape reverses the old adage '*what you can't see won't hurt you*', and blurs the boundary between 'contaminated and safe'; 'seen and unseen'; 'formal and informal'. While acknowledging that formal and informal activity can be viewed as a "multicoloured" (Smith & Stenning, 2006) spectrum, we also conclude that informal activity can be a lens through which to view wider issues, such as how people use informality to renegotiate their vulnerable status of post-nuclear bare life. Informal activities around Chernobyl, which are often enacted through local knowledge and unofficial understandings of the nuclear landscape, cultivate mechanisms of informal welfare that replace or sit alongside the failed and retreating state welfare system.

This research is grounded in long-term ethnographic fieldwork between 2010 and 2013 around the Chernobyl border region, which is a few hours by minibus (*marshrutka*) north of Kyiv. Food and goods such as scrap metal from within the Exclusion Zone and the wider region are often informally traded within local urban areas, including the capital, linking the Chernobyl landscape to the rest of Ukraine, involving formal business structures, through informal supply chains. Ethnographic methods were employed with over one hundred semi-structured and informal interviews with local residents, border guards, former liquidators, scrap collectors, gatekeepers, returnees, and local elites. Other key research tools included the extensive use of participant observation and a visual methodology involving participant photography, explored in a previous article (Davies, 2013). Given the sensitivity of the material, the identities of all participants are concealed and any information that may be harmful to the research participants has been omitted.

3. Structure and agency in debates on informality

Since Hart's first mention of 'informal economies' in 1973, the debate on informality has been enriched by a wide number of empirical and theoretical studies exploring the nature and diversity of alternative, informal, or diverse economies (Escobar, 1995; Gibson-Graham, 1996; Law & Urry, 2004; Spinosa, Flores, & Dreyfus, 1997). It is possible to see the debate on informal economies, and the different positions resulting from it, as an extension of the structure-agency debate. Modernists and transitionalists, in particular, tend to consider the existence of informal economies and related phenomena (informal employment, work and undeclared activities) as mostly depending on structure. According to their position, informality results from temporary, or transitional, adjustments in the path to modernity that are bound to disappear after a country, or a sector, has been modernised (Boeke, 1942; Geertz, 1963; Lewis, 1959). Structural perspectives share, to a different extent, the belief that participation in informal activities is an imposition rather than a choice. They start from the idea that informal economic practices are more spread and important in economic systems where the state is unable to protect its citizens against social risks, a number of which are pushed into informal employment, and unregistered economic activities (Davis, 2006; Gallin, 2001). In both cases the central idea is that it is mostly the marginalised who engage in informal transactions because of lack of alternative options (Castells & Portes, 1989; Hudson, 2005; Sassen, 1997).

Those two positions put emphasis on structure, be these economic and institutional frameworks or structures created by the ensemble of economic and administrative actors that either decide on work conditions or their regulation. Exclusion is sometimes prompted, according to some critics of capitalism, by the lack of need to maintain a reserve army of labour or lack of desire to act as a welfare state for those who have been formally excluded by the economic life of the country (Hudson, 2005). This leads scholars to consider that informal activity is largely involuntary with people just falling into it for the sake of survival (Castells & Portes, 1989; Sassen, 1997) meeting a desire by large actors to reduce costs and maximise profits (Bender, 2004; Hapke, 2004; Ross, 2004) and thereby leaving 'everyday' people with no alternatives.

In contrast to the above approach, neoliberal, ultraliberal and some behaviouralists (Gaal & McKee, 2004) argue that non-participation in and non-contribution to an economic system is a matter of choice. Rather than being initiated by an overarching system, lack of participation to the formal economic life of a system largely depends on the fact that people themselves choose not to be part of a system they do not trust, or that they believe is bringing them more damage than benefits. Reasons vary, from high taxation, corruption to lack of formal benefits of acknowledgement for micro economic actors (De Soto, 1989; Harboe, 2014, 2015; London & Hart, 2004), but the general approach is that informality complements the formal economy when economic or administrative hurdles make it more convenient (Cross, 2000; Gerxhani, 2004; Perry & Maloney, 2007) as a result of a micro cost-benefit analysis (e.g. De Soto, 1989; Minc, 1982; Sauvy, 1984).

Recently, however, the above monetary-centred vision has been challenged by a number of works coming from various disciplines. In particular, influences from feminism, new institutionalist economics, and critical empirically grounded studies on the meaning of money in socio-economic systems have informed a relatively new perspective considering monetary and financial transitions as socially embedded (Bourdieu, 2001; Chakrabarty, 2000; Davis, 1992; Escobar, 1995; Gibson-Graham, 1996, 2006; Leyshon, Lee, & Williams, 2003; Zelizer, 2005). Some scholars have insisted on the fact that these transactions are based on work or relations for a circle of friends, kin and acquaintances (Nelson & Smith, 1999; Smith & Stenning, 2006; Williams & Round, 2007). Other studies have focused on social relations and social/redistributive motives (Williams, 2005). This post-structural perspective has

proven to be a good interdisciplinary synthesis (e.g. Gurtoo & Williams, 2009; Maloney, 2004) between scholars looking at the market, or economic logic as prevailing over everything else (Egbert, 2006) and those seeing the meaning of every transaction in a social and societal framework with no apparent economic logic (Gudman, 2001).

Our article starts from this perspective and explore the meaning of transactions assuming a logic that transcends the self-interested utility-maximising economic one. We do not deny here the economic gain informal transactions bring or that they are essential to the survival of most of the involved actors. We consider, however, that economic reasoning is embedded in a larger framework that prioritises a long-term logic, and subsequently long-term relationships, interactions and the embeddedness of economic and social life. We draw here from a growing body of literature in anthropology about favour exchanges in different regions of the world (Ledeneva, 1998, 2006; Tlaiss & Kauser, 2011; Yang, 1994) but also the social and cultural significance of economic and social exchanges that Parry and Block (1989) pointed out both for unreciprocated gifts and even for the symbolic function of money that can be social or economic depending on culture (Parry & Block, 1989; Polese, 2014a). We also build on works looking at informal transactions as building respectability, hierarchies and status (Pardo, 1996) that confirm or subvert the social symbolic order of a community or even a society. As White has described, there exists the possibility that social and economic relations become so embedded to be indiscernible so that 'money makes us relatives' (1994).

These premises allow us to approach post-structuralist perspectives going beyond the survival logic that sometimes features in scholarly works. We look at the way social and economic functions of informal transactions engender a redistributive system that generates, allocates and allows the sharing of welfare and how this system is based on a balance between economic benefits and the construction of social relations and social facts.

4. Chernobyl

Whilst mostly explored by scholars from the hard or life sciences, Chernobyl has recently gained popularity in the social sciences across fields such as human geography (Davies, 2013, 2015; Rush-Cooper, 2013), anthropology (Petryna, 2002, 2011; Phillips, 2005, 2012), sociology (Kuchinskaya, 2011, 2012, 2014), history (Kalmbach, 2013), studies of tourism (Goatcher & Brunsden, 2011; Stone, 2013; Yankovska & Hannam, 2013), culture (Falkof, 2013), and visual studies (Bürkner, 2014). What these scholars share is the realisation that the Chernobyl disaster has multiple interpretations and realities, with contested impacts that stretch both within and beyond post-socialist space. For some, the 1986 nuclear disaster has come to embody the demise of the Soviet era – both in the way the accident itself contributed to the sudden implosion of the internally vulnerable Soviet system (Van der Veen, 2013), but also in the way that the Exclusion Zone today has become a frozen microcosm of late-Soviet everyday life (Davies, 2013). For countless people Chernobyl remains an ongoing disaster. Its consequences extend beyond its unknowable death toll, and well past the confines of its official nuclear spaces, penetrating many social, psychological and economic facets of everyday life.

Adriana Petryna (2004: 263) describes how after Chernobyl, a new 'informal economy of diagnoses and entitlement' emerged. In a world where radiation risk is invisible to the lay perspective, informal means of overcoming this technological blindness began to surface. Doctors were bribed not simply for preferential medical treatment, but to diagnose a more financially rewarding Chernobyl disability status. Hospitals and sites of healthcare are well-documented arenas of informal exchange (Mæstad & Mwisongo, 2011; Morris & Polese, in press, 2014b, 2006, 2008; Stepurko, Pavlovab, Grygaa, & Grootb, 2013), but Chernobyl presented a situation where an individual's entire bio-political status could be won and lost at the turn of a brown envelope. The new forms of 'biocitizenship' (Petryna, 2002) that emerged after Chernobyl, where a higher disability status equalled more social benefits, meant that an individual's biology became bio-capital to be informally traded within the State's healthcare system; 'bare life' (Agamben, 1998) could be informally renegotiated.

Here – like in other modern spaces of exception suggested by Giorgio Agamben (2005), such as Nazi concentration camps or Guantanamo Bay – certain people are excluded from the normal protections of the law, and allowed a 'death without consequences' (Doty, 2011: 610). We follow calls from human geographers to 'bring Agamben out from the battlefield' (Laurie, 2014) and can apply his framework to the nuclear landscape of Chernobyl. We find that in Chernobyl, a permanent state of emergency is enforced geographically through the construction (and performance) of nuclear 'Exclusion Zones', and through its governance from Ukraine's 'Ministry of Emergencies', thus ensuring that the state of exception persists. As such, those living in Chernobyl-affected territories can be viewed as 'bare life' (Agamben, 1998); their lives stripped of the protection of the law, and abandoned through insufficient welfare and compensation protection to an uncertain fate; their potentially damaged biologies are placed outside the responsibility of the state to face the hidden violence of abandonment. To live inside contaminated territory is therefore to live outside the de facto protection of the law.

5. Chernobyl welfare

After Ukrainian independence in 1991, the baton of responsibility for Chernobyl passed from the USSR to Ukraine, making it one of the least welcome and most toxic inheritances of Soviet collapse. At first, a newly independent Ukraine increased welfare payments and provisions as a method of publically and politically distancing itself from its former Soviet masters, but

recent developments have seen a new approach to Chernobyl management. In 2010 the '*Ministry of Emergencies and Affairs of Population Protection from the Consequences of Chernobyl Catastrophe of Ukraine*' was supplanted by the much pithier '*State Emergency Service*'.[1] The dropping of reference to 'Chernobyl' was more than semantic efficiency, but part of a wider move within Ukraine and beyond to rebrand the catastrophe from an ongoing process to a bounded and fixed event in late-Socialism. This move preceded the construction of the EU funded 'New Safe Confinement'; a huge structure that will envelop the infamous Sarcophagus of Lenin Reactor 4, and thereby attempt to physically *and* symbolically 'put a lid' on Chernobyl as an event.

Chernobyl welfare, too, has been constantly threatened with overhaul by successive Kyiv regimes, often met with protests from Liquidators and other Chernobyl victims (*Chernobiltsi*). With estimates of 5–8% of Ukraine's annual state budget being dedicated to post-Chernobyl management (Danzer & Danzer, 2014; Oughton, Bay-Larsen, & Voigt, 2009; Stan, 2012), it is no wonder that Kyiv has made moves towards reframing the disaster from an open-ended question to a geographic and temporally closed-off 'certainty' in late-Soviet history. This shift in Chernobyl management follows calls from the World Bank that describe Chernobyl welfare as a 'dead weight' on Ukraine's floundering economy (Petryna, 2011) – a political view that will doubtless increase following Ukraine's dire post-Euromaidan position and stringent IMF loan conditions (Davies, 2014).

Unlike other spheres of state protection in post-Soviet space, the sprawling and underfunded Chernobyl welfare system is not something that the private sector is willing to enter. Referring back to Fig. 1, welfare has remained in a de jure sense entirely within the remit of the state, yet in a real sense informal activity has had to plug the gap that state-welfare has left bare. As the state reduces the size of Chernobyl's welfare and benefit system, which already falls well short of protecting its exposed citizens, it will become even more necessary for informal mechanisms to step in where welfare fails, and circumvent the consequences of de facto state abandonment. As Chernobyl citizens face a 'double exposure' from the combination of nuclear pollution and failed governance (Davies, 2013: 116), they increasingly rely upon informal mechanisms to subvert their position as post-nuclear bare life. Chernobyl is, in fact, no case study proper. It is a highly anomalous relationship between the population of an area and the welfare state. Nonetheless, despite its multiple forms of uniqueness, Chernobyl is still a representative element of more generalised state withdrawal.

6. Food and welfare

There are over 2.15 million people in Ukraine who live on territory officially designated as contaminated by Chernobyl (Ministry of Emergencies of Ukraine, 2011, 42) – around 4% of Ukraine's population (State Statistics Committee of Ukraine, 2004).[2] Those who live on this Chernobyl-affected land are entitled to monthly compensation payments designed to help people buy clean food, and thus mitigate the risk of consuming produce grown in polluted soil. However, the lived experience of this welfare system is quite different from its aim, as demonstrated in the following ethnographic vignette.

For Bogdan – a former Liquidator – and his wife Klara, informal economic activity is vital because it supplements their small formal income and tiny welfare payments they receive as compensation for living with Chernobyl. In 2008 Bogdan was sacked from his job as a driver in Chernobyl after an argument with his boss about not being paid for half a month's work. His wife Klara, now the main breadwinner, works two jobs as a school dinner lady and a carer for the elderly, getting paid around $230 per month. Their combined formal income gives them just enough to get by. On top of this, explains Klara, '*the government give us 2 Hryvnia and 10 Kopeks a month to buy clean food.*' Many research participants complained about the extremely low level of Chernobyl food compensation, which varies from 1.6 Hryvnia in places with lower levels of radiation, to Klara and Bogdan's case of 2.1 Hryvnia, for those who live with higher recorded radiation levels. At the time of writing, this is just 13 to 16 cents per month – a virtually useless amount in the Ukrainian context, where food prices are comparable to the UK (Round et al., 2010). As Klara rhetorically continued – '*What the hell can we get with that?*'

Although some welfare payments in Ukraine such as pensions or disability subsidies 'are adjusted periodically according to changes in the national average wage and inflation' (SSPTW, 2012: 307), this has not been the case with Chernobyl food benefits, which are – as a Ukrainian diplomat explained during an interview – '*fixed at the same rate since the early 1990s.*' As such, this dismally low rate of compensation only serves to designate a territory as contaminated by nuclear pollution, yet does nothing to alleviate the problem. It reinforces the reality of contamination, reminding people each month when they collect their compensation, yet does nothing in the way of actually helping. This example of welfare failure in Ukraine can be seen as a form of 'stealthy violence' (Gilbert & Ponder, 2013), where individuals are exposed as bare life through inadequate compensation and de facto state-abandonment. Chernobyl governance produces lives that can end without consequence – not killed, but not protected from radiation either, effectively 'kept alive through a state of injury' (Mbembe & Meintjes, 2003). '*We couldn't even buy bread with that,*' complained Bogdan, who echoes a sentiment held by many who live within this stigmatised 'landscape of threat' (Parkhill, Butler, & Pidgeon, 2013: 1).

As in other post-socialist rural spaces, self-provisioning is an important survival strategy in the post-nuclear

[1] This ministry was renamed again in 2012 to the similarly succinct 'Ministry of Emergencies of Ukraine', with reference to 'Chernobyl' being equally absent.

[2] These statistics were produced before the 2014 annexation of Crimea and continuing crisis in East Ukraine.

context of economic and environmental precarity. The irony of this broken Chernobyl welfare system is highlighted by the fact that most of the food that people eat in contaminated regions around Chernobyl is grown by themselves, in the very soil that the compensation is supposed to protect them from. In the face of a retreating state, many people in this nuclear landscape have developed other mechanisms of social protection that are independent from state welfare, involving informal activity, unofficial understandings of radiation risk, and social networks.

Standing in a small barn by his house, just a few kilometres from the Exclusion Zone fence, Bogdan explained how he intended to exchange surplus sacks of potatoes with members of his social network who lived nearby: '*I have no money to pay them, only potatoes. If I have the money to pay them then I do.*' The potatoes were stored below the wooden outbuilding where he and Klara keep a few livestock: three pigs and a cow – their chickens roaming around the yard. The smallholding was typical of the parcels of land found in the Chernobyl border region, more 'household plot' (Czegledy, 2002: 203) than farm. Between formal employment and looking after their elderly relatives who lived nearby, there was little time for growing surplus cash crops. In the small cool cellar, above the mounds of potatoes grown earlier in the summer, an array of other self-cultivated or foraged foods stood high on shelves, pickled in large jars. Onions, tomatoes, mushrooms, beetroots, berries, gherkins and a variety of other fruit and vegetables sealed in glass. Though a banal and ordinary scene to anyone familiar with post-Soviet rural *and* urban life, it is one made unusual and distinct by the assertion that radiation's 'consumption in food products – especially for those living near Chernobyl – is practically unavoidable' (Phillips, 2005: 288). Yet this array of hard-earned produce in Bogdan's cellar was, for him at least, untarnished by the threat of radiation.

If the jars represented anything, it was not the invisible threat from contamination, but the months of toil it had taken to put the food there in the first place; domestic food production in Ukraine should not be over-romanticised (Round et al., 2010). Like other forms of informality, the self-cultivated and gathered food was an expression of agency – minor victories against the uncertainty of poverty, each jar an 'economic cushion' (Czegledy, 2002: 209) that exists beyond the formal economy and failed welfare system.

Wide-scale post-socialist marginalisation has meant many Ukrainians 'are compelled to worry more about putting food on the table than about the "ecological state" (*ekolohichnyi stan*) of that food' (Phillips, 2005: 288). As one elderly woman who lived near the edge of the Exclusion Zone explained, in the confusion and chaos after Chernobyl, she was told to avoid eating various foodstuffs such as berries and mushrooms, or to drink locally produced milk, but:

> '*If you are not going to drink or eat everything that they say, then you won't even have the energy to move even your legs … you'll have no power to even move your legs…*'

In the wake of a de facto absence of formal welfare protection, many people continue to participate in risky and informal food practices, normalised and reinforced by local social networks. Bogdan took the potatoes to his friend who was sitting in a boat moored at the water's edge very near the border of the Exclusion Zone. Concealed from the road, between a smallholding and the tall reeds that are synonymous with the Pripyat Marches, around thirty men were busily folding fishing nets, repairing their boats, fixing out-board motors, and hauling-in the morning's catch. The number and size of the fish suggested this was not just evidence of 'the growing commercialisation of rural household production' (Pallot & Nefedova, 2003: 47), but part of a wider industry of informal (and formal) activity that takes place in this nuclear border region. Dilapidated concrete signs nearby read '*Fishing is Strictly Forbidden*' as the river here runs past the 'most contaminated water body in the zone of the Chernobyl accident' (Kryshev, 1995: 217). The unfixed and ephemeral character of this watercourse that flows through the Exclusion Zone itself adds one more layer of liminality to an already fuzzy nuclear border. While it was not possible to trace the end destination of these prohibited fish via a 'follow the thing' (Cook, 2004) approach, respondents suggested the fish were destined to be sold for money in cities such as Kyiv, as opposed to being solely exchanged within localised kin networks – the sheer amount of fish collected in large nets made this monetary outcome inevitable. Environmentally risky foodstuffs from restricted areas such as mushrooms, game, barriers and fish regularly enter the food chain in Ukraine through various informal actions involving trespassing the official borders of the Exclusion Zone (Davies, 2011).

7. Informal understandings of Risk

Uncertainty about radiological health, as well as economic insecurity and a lack of adequate welfare support has produced informal understandings of radiation risk in communities that surround Chernobyl. These unofficial nuclear risk perceptions have become a shared welfare resource, allowing abandoned communities to act beyond the official nuclear limits and rules of the Exclusion Zone. The act of exchanging potatoes grown in soil around Chernobyl with illegally caught fish from within the Exclusion Zone, relies on collective risk consciousness that reinforces and reciprocates informal understandings of radiation, and ways of alleviating the lack of welfare provision. In this way, the excluded and abandoned population of Chernobyl have created new mechanisms for social security that are independent from the state's failure to provide 'clean food' – by communally and informally redefining what is considered 'clean'. New 'social facts' about radiation risk are demonstrated and reinforced through risky food practices and informal activity. This does not deny that dangerous food activities around Chernobyl are based partly on necessity (of having little practical alternative), but these behaviours are also normalised, reinforced and renegotiated by a local and embedded understandings of radiation risk that is fostered and reproduced informally through social networks.

For example, during a conversation about food, one mother who lives adjacent to the contaminated space of

the Zone, compared her home-grown (and gathered) food to shop-bought produce:

> '*Everything you buy is full of chemicals and genetically modified stuff. I know this is my food, so I know it is absolutely natural.*'

Like many in this region, this opinion that home-grown and gathered food is safe was held inharmoniously with a wider belief that Chernobyl radiation is deadly. To 'know' the food, is to grow it yourself, and to toil your own soil ensures its safety. '*Why should we be afraid of growing our own?*' she continued, '*The soil is ours*'. Others relied upon local informal knowledge, describing how they knew which fields they should avoid cultivating because the potatoes grew black – in their opinion – because of radiation.

These informal risk understandings occur in tandem with 'normal' informal economic activity that has been well documented elsewhere (Cassidy, 2011; Morris & Polese, 2015; Round et al. 2010; Williams et al., 2013), and add a new layer of resistance to state abandonment and the lived realities of bare life. The collective risk consciousness that is embedded in these practices and normalised in everyday informal activity around Chernobyl allows people to dwell in a landscape where the state has retreated from its welfare responsibilities.

8. Rejecting welfare and embracing place

One key welfare provision available for Chernobyl affected citizens is the option to be resettled in non-contaminated space. Beyond the 350,000 forcibly displaced people who were made to leave the 'Zone of Mandatory resettlement' (Ministry of Emergencies of Ukraine, 2012), those who still live in areas of high contamination outside the Exclusion Zone in Ukraine have – at least in theory – the option of state-assisted voluntarily relocation. In reality, however, many people reject this welfare provision. This can be only partly explained by the long waiting lists involved in securing alternative housing, which are synonymous with welfare systems inherited from the USSR (Gentile & Sjöberg, 2013). People also reject this relocation welfare because of a reliance on informality that connects people to place. We see the ability to perform informal activity, and the social networks that informality relies upon and reproduces, as key factors that dissuade people from leaving the spaces they inhabit, including Chernobyl's nuclear landscape. This is explored in the following ethnographic vignette, which continues from Bogdan's exchange at the river.

'*All of the men you saw are criminals, you see – it is illegal to fish there. And they are dangerous …* ', said Bogdan that evening over a bowl of soup made from the traded fish ' … *but I am not afraid of them*'. Nor was he afraid of higher levels of radiation that could be found in the food. Bogdan is a well-connected man, his large social network vital to his household survival strategies; allowing him to weave in between the informal and formal. When asked if he was ever tempted to move away from this region to somewhere less contaminated he explained how it would be *worse* for his health to emigrate from the landscape he knows best:

> '*most of the people who left here died very quickly, because they had not been accepted into their surroundings … when they left separately, away from people they knew, they died from stress.*'

This is a widely held opinion expressed by those living in this region: that it is better to live with the invisible threat of radiation than to risk the tangible reality of severing social networks, and thus harming the ability to use informal methods of survival and reciprocity. This was *not* based on an opinion that Chernobyl radiation is risk free, indeed *every* respondent had personal experiences of bereavement and tragedy associated with the accident, but rather on an understanding that the alternative was much worse.

The significance placed on the agency of informal activity – even in this extreme environment – speaks to the importance of informality throughout Ukraine in general, and across many other spheres of post-Socialist space. Even on the edge of the Chernobyl Exclusion Zone, where radiological risk makes some informal activity dangerous, this ability to act informally is given a very high importance by local inhabitants. The capacity to use social networks, informal activity and local knowledge to survive outside the formal economy and beyond (or alongside) the welfare system is seen as more important than avoiding the risk of contamination. This has parallels with previous research in highly marginalised areas of the former Soviet Union such as Magadan in Russia's Far East. Here, Gulag survivors who faced extreme climatic and economic conditions refused to be relocated to more affluent areas due the risk of severing their social networks and informal survival tactics on which they so completely depended (Round, 2006).

To an outsider, the nuclear borderland around Chernobyl is an anti-'therapeutic landscape' (Gesler & Kearns, 2002: 132). However, to marginalised individuals who are able to negotiate everyday life through subverting the Zone's 'border processes' (Newman, 2006), as well as through social networks and informal economic activity, the risk from radiation is less of a threat than the reality of migrating elsewhere.

This reliance on a local knowledge of the landscape and on social networks creates an informal pull of place that goes beyond formal techno-scientific understandings of place and radiation risk. The informality of place attachment is a resource that creates spaces where the state can be supplanted by local knowledge. In this case, forms of state welfare (e.g. relocation) are actually *rejected* in order to ensure the continuation of informal activity and the fostering of social support. Here we can view informality as a logic that not only transcends the formal economic one, but also moves beyond formal understandings of health.

When analysing why individuals keep on living with environmentally dangerous environments such as Chernobyl, the ability to perform informal activities that subvert the official understandings of space and place should not be

underestimated. A key example of such informal activity is the prosaic yet illegal, and potentially harmful act of gathering goods from *inside* the Exclusion Zone (Davies, 2011). For instance the normalised and highly risky activity of collecting, consuming, and exchanging mushrooms and berries from inside the forbidden forests of the Zone. This is an extremely pervasive behaviour, despite these foodstuffs being some of the most harmful produce in a nuclear landscape, with recorded levels of human contamination increasing during foraging season (Botsch, Romantschuk, Beltz, Handl, & Michel, 2001).

Scrap metal collection from within the Exclusion Zone is also key among a spectrum of informal activities that takes place in this marginalised nuclear landscape (see Davies, 2015). This prohibited activity of crossing the nuclear border to salvage (and sell) the abandoned detritus from the Zone, contributes to the informal renegotiation of Chernobyl citizens' status as post-nuclear bare life. It draws upon local place-knowledge and agency by subverting the official rules of this nuclear 'space of exception' (Agamben, 2005). The fence around the Chernobyl Exclusion Zone is the physical embodiment of a failed state-attempt to contain harmful radiation. Low-level radiation is not stopped by it, nor too are the informal ebbs and flows of people and goods from within the Zone – as indicated by the many person-sized holes that can be found all along the border between 'clean' and 'unclean' space. This informal behaviour is infused with dangers and risks beyond those associated with radiation however:

> '*... the militia sometimes wait in the forest and then wait for you to cross the border, then they catch you. It depends on who caught you, you may be able to bribe*.'

Several participants described how they remove scrap metal from the Zone, taking it from the many deserted buildings on the other side of the fence. One participant described selling the metal: '*to different dealers. We take it to the factory where it is crushed, melted down, and mixed with other metals...*' From here it is in the formal economic sphere and '*... it is impossible to find or trace it*.' It becomes invisible. The ubiquitous yet unseen presence of informality also dwells within the 'floating mists' (Lefebvre, 2000: 98; Round, Williams, & Rodgers, 2008: 172) of Chernobyl's spaces of exception, not threatening the marginalised but helping them negotiate everyday life in the context of de facto state-abandonment.

9. Conclusion

Despite Chernobyl being a relatively limited geographical area in Ukraine, we would suggest that it is possible to take the micro data used above to extrapolate some lessons that can be applied more widely within post-Soviet space and beyond. Starting from apparently pure monetary transactions that could be considered from a solely economic logic, this article has attempted to provide a more systemic explanation to the series of exchanges happening in the region. The transactions analysed, we suggest, can be considered as a whole, a system that is occupying a vacant welfare niche in an area where the state has unofficially decided not to assert its role.

For many marginalised individuals, despite a belief that Chernobyl has caused widespread sickness, the risk from invisible radiation is considered less of a health threat than the tangible reality of leaving behind social support networks after moving, and the ability to employ local informal economic tactics. From a state perspective, the marginal role the area plays in the economy and politics makes it unattractive or at least not worth the same efforts compared to other regions.

By framing the Chernobyl landscape as a space of exception, this article shows that informal activity provides a key means of subverting the official rules of this space, and the lived realities of 'bare life' (Agamben, 1998). These informal behaviours take place against a backdrop of de facto state abandonment that exposes Chernobyl's vulnerable citizens to the stealthy violence of harmful radiation and a retreating state.

This sense of abandonment is matched, however, by an intensification of social networks, unofficial risk understandings, and informal activities, making possible life with this nuclear landscape, that cannot possibly be considered 'illegal'. Illegal is a term one uses for an activity going against the state, or better the operating of a state. If the state retires from an area, or from providing a service, how can the coping mechanisms possibly be 'illegal'?

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