Spaces of Chernobyl

Emptiness and fullness, absence and presence

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Abstract

"Spaces of Chernobyl: Emptiness and Fullness, Absence and Presence" is a research project situated at the intersection of two discourses: the historically specific and the architectural. Underpinning and weaving its way through the report is a dialectic of spatial fullness and emptiness, of presence and absence, a theoretical framework that facilitates the development of a novel and layered perspective on the spaces and architectures of Chernobyl. Methodologically, these spaces are investigated through multi-media representations available to an outside, Western European audience, including maps, photographic imagery, websites, written accounts and sound recordings. Representations are acknowledged as a valuable source of (mediated) knowledge and experience, and the report elucidates as much, if not more, about the representations themselves than the actual spaces they represent.

In Section 1, radiation, an immaterial danger that fills space but exists beyond our sensory capabilities, is discussed in terms of how it was geographically mapped after Chernobyl to make it (phenomenally and conceptually) present. Section 2 is an exploration of emptied architectures, spaces of former habitation evacuated of their inhabitants: the focus is on representations of the permanently abandoned city of Pripyat, mythologized as a dystopic space. Section 3 describes the phenomena of the empty space's new, resilient inhabitants: the reclaiming of space by nature – the contaminated space reveals itself to be ecologically full. In Section 4, the Sarcophagus, the concrete and steel container that houses the ruined nuclear reactor, is discussed as a significant presence in the landscape, in terms of human activity and as a symbolic reminder of the Chernobyl disaster. In conclusion, general ramifications for architectural history and further questions are proposed, situating the research within wider debates on wasteland spaces, phenomenology and ocularcentrism.

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Introduction

At 01:23 on April 26, 1986 a powerful steam explosion destroyed the unit 4 RBMK reactor at the Chernobyl nuclear power plant (NPP), located in the Polissa region of Ukraine (then still part of the Soviet Union). The accident was caused by "gross breaches of the operating procedures by staff and technical inadequacies in the safety systems."[1] *The subsequent raging fire, which burned for 10 days, ruined much of the building and resulted in a vast release of radioactive debris onto the surrounding area and radionuclides into the atmosphere.*[2]

Facts & Myths

A widespread belief is that hundreds of thousands, if not millions, of people died as a result of the nuclear accident at Chernobyl. However, according to the World Health Organisation (WHO) fewer than fifty deaths are directly attributable to radiation exposure as a result of the disaster.[3] Although cases of thyroid cancer have risen among exposed populations (particularly in children and adolescents) the chances of survival are around 99% and there is no significant evidence to suggest a decrease in fertility rates or an increase in congenital malformations as a result of radiation exposure.[4] According to a recent Chernobyl Forum report, "most emergency workers and people living in contaminated areas received relatively low whole body radiation doses comparable to background levels."[5] In fact, the scientific community concurs that detrimental social and psychological effects of the disaster pose a far greater threat to the well-being of communities than that of radiation exposure: "the mental health impact of Chernobyl is

[1] M. I. Balonov, "The Chernobyl Forum: major findings and recommendations," *Journal of Environmental Radioactivity* 96 (2007): 7.
[2] The fire was successfully brought under control with the aid of helicopters, which dropped an estimated 5,000 tonnes of neutron absorbing compounds and fire control material into the flaming crater.
[3] World Health Organization, "Chernobyl: the True Scale of the Accident: 20 Years Later a UN Report Provides Definitive Answers and Ways to Repair Lives," WHO, 2005, http://www.who.int/mediacentre/releases/2005/pr38/en/print.html.
[4] Ibid.
[5] Ibid.

the largest public health problem unleashed by the accident to date,"[6] with an estimated 7 million individuals thought to be adversely affected.[7]

Due to official Soviet secrecy and the widespread proliferation of misinformation, which have long enshrouded the disaster, there persists an extensive lack of factual knowledge about Chernobyl and its effects. The clouding of information and abundance of misperceptions has resulted in the disaster accruing a mythic status, locally as well as globally. In affected areas, "paralyzing fatalism"[8] and 'radiophobia' have been widely reported and "people make up their own stories and myths"[9] in order to comprehend the uncontrollable events that engulfed them. Further afield, "the very word 'Chernobyl' has become a synonym for 'horrific disaster:'"[10] 'Chernobyl' has been dubbed 'the worst nuclear accident in human history,' conjuring up appalling associations of uncountable deaths and genetic mutations. In the aftermath of the explosion, the Western media ran all sorts of scare stories, the *Times* and the BBC, for example, stating "that 30,000 and more people have died in Europe and Russia as a result of exposure to radiation."[11] There has been and continues to exist a vast fissure, in local and international discourse, between the 'facts' and the 'myths' surrounding the Chernobyl accident.

It is in this gap, this space, between 'fact'[12] and story-telling that my own research is situated: I interweave factual information and constructed myths (ideas and representations) to offer a novel insight into a history that continues to haunt the popular Western consciousness. Chernobyl is the embodiment of our fears of all things nuclear gone wrong. I hereby inevitably produce my own myth, my own construction, of Chernobyl.

[6] Chernobyl Forum report, quoted in Ibid.
[7] "Chernobyl's most serious impact was on the mental health of about seven million people labelled as victims of the accident." (Lynn Barnett, "Psychosocial effects of the Chernobyl nuclear disaster," *Medicine, Conflict and Survival* 23, no. 1 (2007): 47).
[8] WHO, "Chernobyl: the True Scale of the Accident."
[9] Barnett, "Psychosocial effects:" 50.
[10] Mary Mycio, *Wormwood Forest: A Natural History of Chernobyl* (Washington, D.C.: Joseph Henry Press, 2005), 1.
[11] James Lovelock, *The Revenge of Gaia: Why the Earth is Fighting Back – and How We Can Still Save Humanity* (London: Allen Lane, 2006), 101.
[12] Even the 'facts' surrounding the Chernobyl accident continue to be hotly debated and contested; Chernobyl continues to be an unresolved history of many unanswered and unanswerable questions.

Method & Perspective

The intellectual journey that led me to Chernobyl began with an abstract question: *is there such a thing as an empty space?*[13] This broad, philosophical starting point inspired further questioning and multiple lines of possible enquiry within the field of architectural history. In tackling a potentially vast topic, I initially broke down the linguistic label 'empty space' into conceptual categories, exploring how the term is adopted in different contexts. In the process of grounding my conceptual enquiry in real space and time, I came across a place that is quite literally *empty*. The 'exclusion zone' surrounding the Chernobyl NPP is an evacuated space, a vast tract of land that was emptied of its human contents as a result of radioactive contamination after the accident. This empty space, once full with human life and activity, captured and held my imagination as a persistent image.

Reading up about the disaster space, I discovered that the Chernobyl exclusion zone (CEZ) has never actually been completely empty (of people). Hundreds of elderly residents, for example, have semi-legally returned to the abandoned villages, reoccupying their homes and growing their own (radioactive) food.[14] Around 2,500 people pass through the town of Chernobyl (18 km from the ruined reactor) on a daily basis, a place that houses the CEZ's administration, whilst the NPP is still manned by a workforce of around 4,000.[15] However, the 'myth' of this space as bleakly empty continues to be presented and re-presented, evoked, in turn, by the various linguistic labels attributed to the CEZ: 'dead zone,' 'zone of alienation,' 'forbidden zone,' or simply 'the zone'.

I discuss Chernobyl in spatial terms: I am interested in the empty as well as the not-so empty spaces. Emptiness suggests an absence – an 'empty space' is one where something is missing in relation to a concept of fullness. Underpinning and weaving its way through the report is a dialectic of spatial fullness and emptiness, of presence and absence. Utilising this framework of opposition, the discussion spans the zone of exclusion and immaterial radiation, absent human life and ecological fullness, the deserted city and the

[13] This initial question was inspired by the round table discussion at the interdisciplinary colloquim 'Appropriating Space' (Goldsmiths, University of London, February 22-23, 2008).
[14] "[R]adionuclides easily penetrate in agricultural products (vegetables, milk, meat)." (S. P. Gashchak, Deputy Director for Science of the Chornobyl Center's International Radioecology Laboratory, quoted in "Chernobyl FAQ," Chornobyl Center for Nuclear Safety, Radioactive Waste and Radioecology, http://www.chornobyl.net/en/index.php?cstart=2&do=cat&category=faq).
[15] Mycio, *Wormwood Forest*, 32.

monstrous Sarcophagus. There is no single argument; rather my thesis is an exploration of ideas through spaces and vice-versa an exploration of spaces through ideas.

Due to practical constraints I was unable to visit the spaces under investigation. This distance (the space being empty of myself) is a challenge to be negotiated: how can I know and interpret what is directly, phenomenally, unknown to me? I will necessarily be relying on mediated evidence, on representations of the unvisited spaces. My perspective is that of an outsider, drawing on material that is available to me in the UK: I draw on a range of English-language academic and biographical texts, diagrams, film footage, online sources, maps, photographs and poetry. I hence say as much about the actual spaces as the representations I come to understand them through. My method thus offers insights into how the spaces of Chernobyl have been and continue to be represented to an outside, Western European audience. How are the spaces of interest perceived, interpreted and communicated through different media? What layers are added, what myths constructed, in the process of mediation?

Literature Review

There is a vast published literature on the Chernobyl disaster, an historical event that continues to inspire widespread debate and publication. The Chernobyl Forum (established in 2003)[16] has compiled much of the factual and scientific information relating to the accident, producing lengthy reports on Chernobyl's environmental and health impacts.[17] Various general, detached historical accounts have been published over the years, invariably purporting to reveal the 'true story' of Chernobyl, see, for example: Chris C. Park's *Chernobyl: the Long Shadow* (1989) or R. F. Mould's *Chernobyl Record: The Definitive History of the Chernobyl Catastrophe* (2000). More specialised, academic publications, such as Mary Mycio's *Wormwood Forest: A Natural History of Chernobyl* (2005) or Lynn Barnett's "Psychosocial effects of the Chernobyl nuclear

[16] The Chernobyl Forum is made up of the IAEA, seven other United Nations Organisations (FAO, UNOCHA, UNDP, UNEP, UNSCEAR, WHO and The World Bank) and Belarus, Russia and Ukraine.
[17] In the context of controversy and misinformation surrounding the Chernobyl disaster, The Chernobyl Forum's mission is to "generate 'authoritative consensual statements' on environmental consequences and health effects attributable to radiation exposure from accident, and provide advice." (International Atomic Energy Agency, *Environmental Consequences of the Chernobyl Accident and their Remediation: Twenty Years of Experience: Report of the Chernobyl Forum Expert Group 'Environment'* (Vienna: IAEA, 2006), 1).

disaster" (2007), provide in-depth, rigorous accounts of a particular aspect of the event and its effects. In contrast, the biographical literature on Chernobyl offers affecting first-hand accounts, detailing the disaster's impacts on individual lives, see, for example: Svetlana Alexievich's oral history, *Voices from Chernobyl* (2005). Other published texts, such as Chernobyl photographer Igor Kostin's memoirs, *Chernobyl: Confessions of a Reporter* (2006), or the compilation, *Chernobyl Concerns Everyone: Euphoria, Disaster, Overcoming, Waste, Memory* (2000), have combined historical information with personal, reflective accounts.

The Chernobyl disaster resulted in a vast abandoned space that is comparable to other derelict spaces of concern to governments and the planning industry. These 'wastelands' are conventionally regarded as "*terra nullius*,"[18] "vacant sites"[19] containing nothing (or nothing of value), useful only in terms of their potential for future development: "it is simply empty land [...], a wasted opportunity,"[20] a "problem" [21] to be tackled. However, such 'empty' spaces have recently emerged as a subject of interest within architectural history: there is a growing tendency in critical spatial discourse towards *filling* wasteland spaces with positive associations and highlighting their widely overlooked contents and usages. See, for example: Gil M. Doron's "The Dead Zone and the Architecture of Transgression" (2000), Marion Shoard's "Edgelands of Promise" (2000) or Tim Edensor's *Industrial Ruins: Space, Aesthetics and Materiality* (2005). These authors argue that wasteland or derelict space is of value in and of itself, constituting rich environments that offer opportunities for alternative spatial practices (from the transgressive to the recreational).

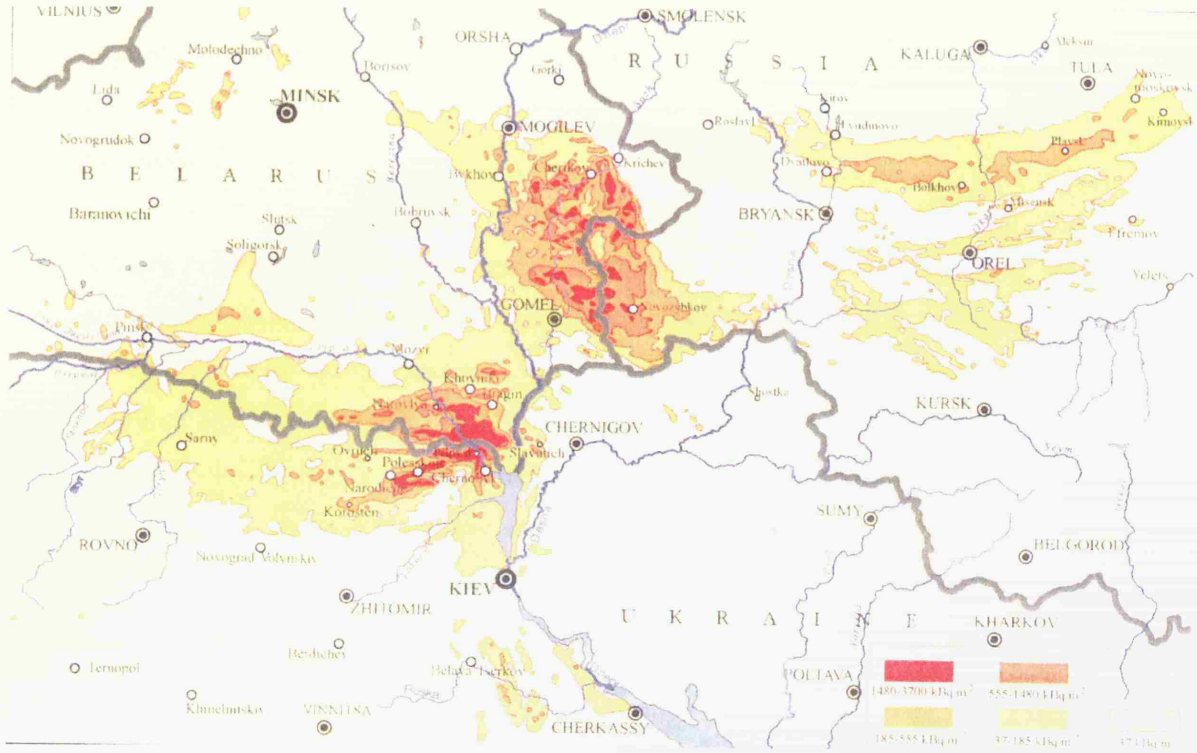
Here, I bridge two discourses: the historically specific and the architectural. Others who have discussed Chernobyl in spatial terms are Dante Fiorenza and Elin Olsson, with articles published in *Spazio e Società* (1989) and *01. AKAD – Experimental Research in Architecture and Design – Beginnings* (2005), respectively. Fiorenza describes the evacuation of the CEZ and the relocation of inhabitants to new, purpose-built

[18] Tim Edensor, *Industrial Ruins: Space, Aesthetics and Materiality* (Oxford and New York: Berg, 2005), 8.
[19] Commission for Architecture and the Built Environment, *Land in Limbo: making the best use of vacant urban spaces* (London: CABE, 2008), 3.
[20] Ibid., 2
[21] Rosalind Greenstein and Yesim Sungu-Eryilmaz, eds., *Recycling the City: The Use and Reuse of Urban Land* (Cambridge, Massachusetts: Lincoln Institute of Land Policy, 2004), 1.

settlements, while Olsson provides a reflective, first-hand account of her visit to the CEZ nearly twenty years after the accident. My work paves new ground by utilising a conceptual framework of opposition (emptiness and fullness, absence and presence) and by drawing on mediated representations of Chernobyl as sources of knowledge and 'experience.' Indeed, most of us will never have the opportunity of visiting the CEZ: it is through its multi-media representations that this space is most widely 'known.'

Structure

In Section 1, radiation, an immaterial danger that fills space but exists beyond our sensory capabilities, is discussed in terms of how it was geographically mapped after Chernobyl to make it (phenomenally and conceptually) present. Section 2 is an exploration of emptied architectures, spaces of former habitation evacuated of their inhabitants: the focus is on representations of the permanently abandoned city of Pripyat, mythologized as a dystopic space. Section 3 describes the phenomena of the empty space's new, resilient inhabitants: the reclaiming of space by nature – the contaminated space reveals itself to be ecologically full. In Section 4, the Sarcophagus, the concrete and steel container that houses the ruined nuclear reactor, is discussed as a significant presence in the landscape, in terms of human activity and as a symbolic reminder of the Chernobyl disaster.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Mozyr
Khoyniki
Narovlya
Zhlobin
Rechitsa
OREL
Yelets
KURSK
CHERNIGOV
Sarny
Ovruch
Polesskoe
Slavutich
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Narodichi
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Novograd Volynskiy
KIEV
SUMY
BELGOROD
ZHITOMIR
Berdichev
Belaya Tserkov
U K R A I N E
KHARKOV
Ternopol
Khmelnitskiy
VINNITSA
CHERKASSY
POLTAVA
1480-3700 kBq/m²
555-1480 kBq/m²
185-555 kBq/m²
37-185 kBq/m²
37 kBq/m²

Figure I

Radiation

The nuclear accident at the Chernobyl NPP released an estimated 14 Ebq of hazardous radioactive substances, in the form of gases, vapours, aerosols and 'hot particles.[22] *The surrounding area was dangerously contaminated and as a result was evacuated to ensure the safety of the local population. "Radioactivity was invisible, odorless, colorless. In Afghanistan and in Vietnam, soldiers ran the risk of getting shot, where the pain would be immediate, [...] where it could kill instantly – but at least they knew. Not at Chernobyl."*[23]

Ionizing radiation (henceforth referred to as 'radiation') consists of highly energetic waves or particles released as a result of atomic processes, such as radioactive decay, nuclear fission and nuclear fusion. "Radiation is the most common and essential phenomenon of our universe;"[24] it exists everywhere. Planet Earth is constantly being hit by cosmic rays and radiation is inside every living creature: it occupies the same spaces we do and occupies us. Yet we cannot hear, see, smell, taste or touch radiation. It is beyond our bodily knowledge: our senses tell us that nothing is there – the space is apparently empty.[25] Because radiation escapes our phenomenological, i.e. sensory, understanding of the world I suggest that it occupies a place at the limits of what we can conceptually comprehend. Because we cannot perceive it with our human apparatus (we can't sense it), radiation presents a problem for knowledge: how can I mentally represent what is fundamentally inaccessible to me?

Whilst low doses of radiation are inescapable and relatively harmless, exposure to high doses are deemed hazardous to living beings.[26] However, the degree of the danger continues to be a debated subject as exposure to radiation has different effects on

[22] Balonov, "The Chernobyl Forum": 7.
[23] Igor Kostin, *Chernobyl: Confessions of a Reporter* (New York: Umbrage Editions, 2006), 25.
[24] Gashchak, quoted in "Chernobyl FAQ."
[25] A space is perceived to be 'empty' when there is nothing perceptible in it – and it is our bodily senses that convey this information.
[26] High-level radiation exposure is widely believed to cause DNA damage in individual cells and cause mutating effects in following generations.

different individuals. Radiation is unknown to my body, yet it can destroy my body; it is a "mortal danger that has no colour, taste or smell."[27] How can I comprehend a danger that is apparently not there?

In the aftermath of the Chernobyl accident, the knowledge that human populations were at risk of exposure to high radiation levels was held by a privileged few and communicated to the masses with hesitation. On the April 26, 1986 in the city of Pripyat, situated three kilometres from the Chernobyl NPP, radiation levels were up to 1,000 times that of natural background levels.[28] A handful of officials walked the streets wearing protective clothing and gas masks whilst the city's population, unprotected and unaware, obliviously continued with the activities of daily life. The Soviet people had been indoctrinated to trust in the absolute safety of nuclear power and its production[29] – children cycled up to the plant to watch the blaze whilst others stepped out onto balconies, peering through binoculars at the spectacular glow. "There were no official warnings to stay indoors and no systematic distribution of potassium iodine tablets."[30] It was not until the following day that a brief, official evacuation announcement[31] was broadcast to the city's inhabitants, who were told to pack provisions for 3 days and be ready to leave at 14:00 (over 36 hours after the explosion had occurred). Within three hours, the city was evacuated of its entire population.

Even then, did the evacuees really comprehend the intangible, immaterial danger that had filled streets, houses and lungs? Various reports suggest not. Photographer Kostin recalls, "they protested, they resisted, they used great gestures to say that all was well in Pripyat, that nothing and nobody threatened them and that they were in perfect health."[32] Indeed, an 'empty space' or void of information has veiled the whole Chernobyl tragedy;

[27] Chernobyl, Days That Shook the World, first broadcast January 12, 2004 by BBC2.
[28] Shortly after the explosion, radiation levels in Pripyat were estimated at "0.1 mSv/h." (International Atomic Energy Agency, *The International Chernobyl Project: an Overview: Assessment of Radiological Consequences and Evaluation of Protective Measures: Report by an International Advisory Committee* (Vienna: IAEA, 1991), 48).
[29] " 'Our nuclear plants do not represent any risk. We could have built them at the Red Square. They are safer than our samovars.' " (Soviet newspaper, quoted in Kostin, *Chernobyl: Confessions*, 10).
[30] IAEA, *The International Chernobyl Project: An Overview*, 49.
[31] The official announcement broadcast on April 27, 1986 to the citizens of Pripyat: "Attention, Comrades... an unsatisfactory radioactive situation has occurred at the Chernobyl atomic power station. As a temporary precaution it has been decided to evacuate people from the neighbourhood of Pripyat from 2pm today 27th April." (Quoted in Chernobyl, Days That Shook the World, BBC2).
[32] Kostin, *Chernobyl: Confessions*, 38.

it "remains a black hole of information."[33] Tales of news-blackouts, withheld facts, state secrecy, deception and misinformation abound.[34]

The radioactive contamination that resulted from the Chernobyl accident was not only 'empty' in the sense of being imperceptible it was also markedly absent from public consciousness (i.e. it was missing from popular and media dialogue). "We're often silent [...] Because we don't have the words yet. We're afraid to talk about it. We don't know how."[35] While the Western press concocted all sorts of stories and spurious 'facts and figures' to fill the empty space of information, Soviet secrecy reigned supreme over the lands most affected by the nuclear fallout. What to make of a danger that cannot be perceived and isn't spoken of? If I cannot sense a danger and I am ignorant of it then does it really exist?

The hazardous radiation did, of course, exist and the governing elite was very much aware of this, refusing international assistance and furtively implementing a mammoth post-disaster, clean-up operation.[36] Of particular interest here is the production and use of 'radiation maps,' which informed the official movement of people and the implementation of laws regarding the types of activity that could be carried out on contaminated land.[37] These topographical representations of radiation (see Figures 1, 2 & 3) played a vital role in the human story of Chernobyl and have been reproduced over and over in the official, popular and academic (English language) literature on the disaster.

I perceive the maps after Chernobyl serve a function of making sensible, i.e. available to the senses, that which is phenomenally imperceptible. A map is an image: it is a two-dimensional representation of 'space' made up of colours, lines, shades, symbols and words that we can visually register. In turn, a map can be intellectually comprehended: it is a representation that fits into our understanding, our ordering, of the world. In Figure 1, contamination levels are demarcated by distinguishable, bounded topographies: from

[33] Galia Ackernman, quoted in Ibid., 223.
[34] For example, the first Soviet public media mention of the nuclear accident was belatedly made on Moscow TV on the evening of Monday, April 28 only following the detection in Scandinavia of abnormally high radiation levels. (IAEA, *The International Chernobyl Project: an Overview*, 50).
[35] Belarussian, quoted in Svetlana Alexievich, ed., *Voices from Chernobyl: The Oral History of a Nuclear Disaster* (London: Dalkey Archive Press, 2005), 126.
[36] For a first-hand account of post-disaster, clean up operation of the ruined nuclear reactor unit 4 and surrounding area, see: Kostin, *Chernobyl: Confessions*.
[37] For comprehensive summary of radiation maps and corresponding law enforcements, see: IAEA, *The International Chernobyl Project: an Overview*.

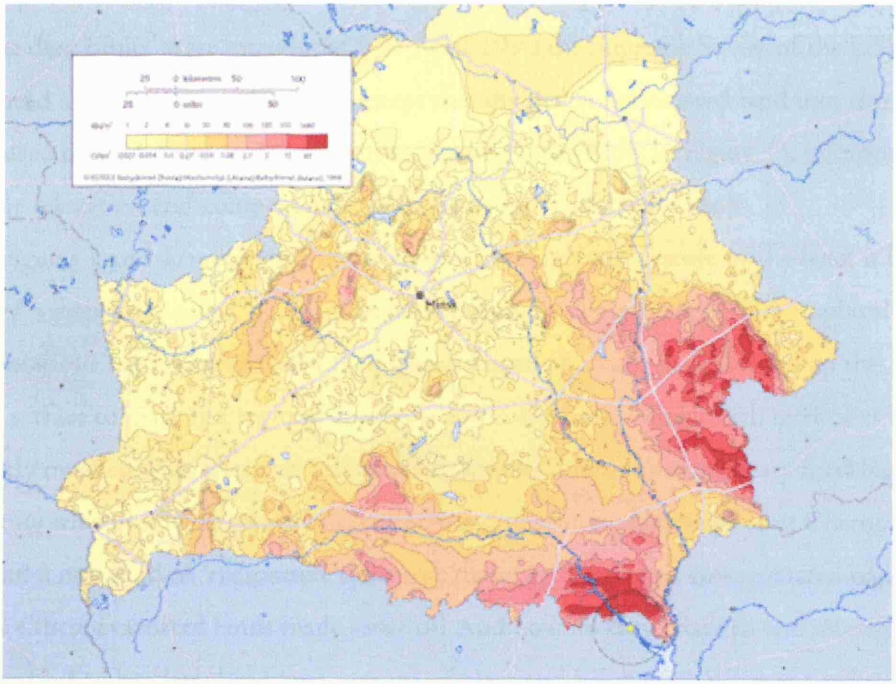
high (red) to low (yellow). Radiation, through mapping, has found a tangible, material form, it has been translated into an actual thing that can be perceived and (hence) made sense of. An 'absence' has been made present.

On April 28, 1986 the civil defence authorities of the UkrSSR and the USSR proposed the first Chernobyl radiation map, the 10-kilometre zone, establishing an absolute no-go area sealed off from public access.[38] On May 2, 1986 it was decided to extend evacuation to a 30-kilometre zone (see Figure 2), a procedure that was completed by May 6.[39] These evacuated zones were schematically symbolized on maps with the Chernobyl NPP at the midpoint of two concentric circles, with radiuses that represented 10- and 30-kilometres respectively. The outer circle is widely reproduced on maps and diagrams and the space that it demarcates came to be referred to (in the English language) as the Chernobyl 'exclusion zone' (CEZ). Looking at the CEZ represented on a map (Figure 2) the message is clear: inside the circle is radioactive danger, whilst outside the circle is safety. This tactic, to draw a distinct boundary around an imperceptible danger, served to conceptually pinpoint and confine radiation to a specific locality. The two-dimensional, drawn borderlines were transposed to real space in the form of 2 rings of barbed wire fencing, interspersed with military checkpoints and watchtowers.

Borderlines (conceptual and physical) offer a sense of security, a reassurance that something has been ordered, put into place, bounded. In this case, the establishment of a zone of exclusion marks off a tract of contaminated land and in doing so helps us to comprehend what we cannot instinctually (as human beings of limited perceptual abilities) conceive of or represent. The intangible danger is thus conceptually represented and accordingly spatially roped off.

However, it became evident that the evacuation of the CEZ was not a sufficient enough measure to protect the population from dangerous radioactivity. Over the following years, detailed maps showing dose rates and contamination by long-lived isotopes were drawn up by scientists, informing wider evacuation and resettlement and the establishment of additional zones.[40] Alongside this process of mapping and geographical

[38] Ibid., 49.
[39] Ibid., 49.
[40] The different established zones were attributed a variety of labels, including: 'Zone of Absolute (Obligatory) Resettlement;' 'Zone of Guaranteed Voluntary Resettlement;' 'Zone of Extensive Radiological



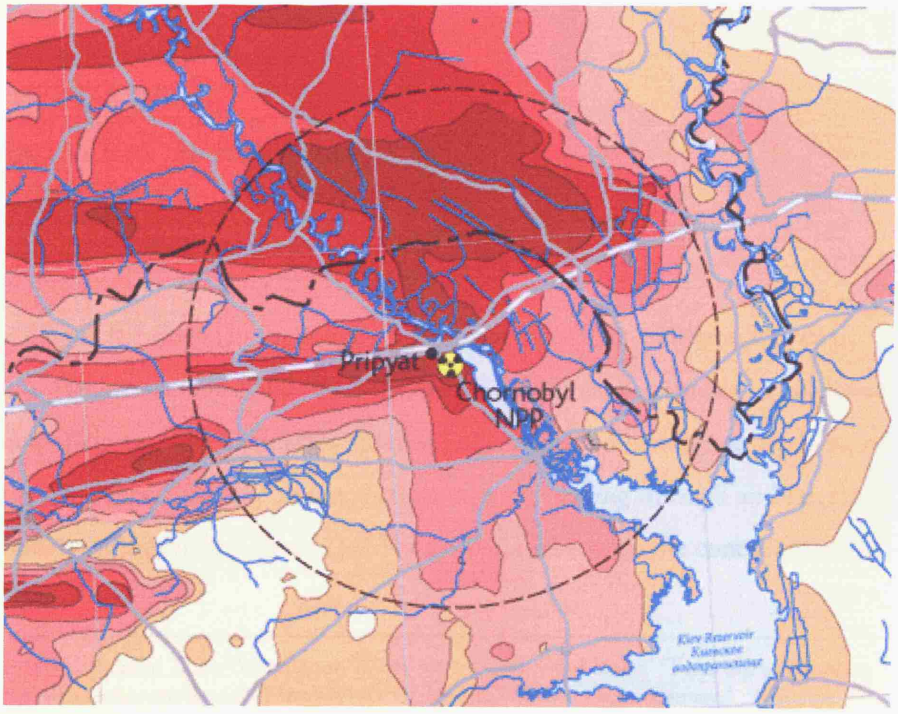


Figure 2

labelling the USSR Ministry of Health drew up concepts for 'safe living:' restrictions were imposed on diet and lifestyle and various (highly disputed) 'temporary-' and 'lifetime dose limits' were introduced.[41] In April 1990 the Supreme Soviet of the USSR introduced a surface contamination concept that divided contaminated land into three areas based on 137-caesium deposition (red, orange and yellow in Figure 1), informing both the relocation and compensation of those living in affected areas.[42]

In Figures 1 and 2, radiation appears to be a topographical feature of the land: it has acquired a distinctly spatial, geographical dimension. Looking at these cartographical representations I am reminded that throughout history, humans have divided up the earth's surface to mark out regions, countries and continents. Whilst such territories are abstractly mapped with lines and colours, they are much more than arbitrary markings, resonating with overlapping histories, cultures and identities. The maps after Chernobyl mark out a new kind of 'radioactive territory': these are dangerous, contaminated regions. How are these evacuated lands made sense of? And how do they relate to and intersect with established borders that frame notions of place and belonging? What is a radioactive country?

> Now if such a piece of Ukraine has
> Been alienated from the rest of it,
> Is it still Ukraine, or is it not? Or
> Maybe it's a black hole in the human
> Consciousness?
>
> (Lina Kostenko)[43]

Looking at the maps (in Figures 1 - 3) I comprehend that radiation knows no borders: it transgresses local and international borders; it cannot simply be cordoned off, contained, enclosed. The 'radioactive country' as represented here is not neatly bounded, but seeps out of the CEZ like an uncontrollable stain, passing through and far, far beyond the boundary of the circle (Figure 2). "The borderline between the contaminated and

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Monitoring;' 'Prohibited Zone;' 'Evacuation Zone;' 'Strict Controlled Zone;' 'Territory of Absolute (Obligatory) Resettlement Zone;' 'Territory of Guaranteed Voluntary Resettlement.'

[41] IAEA, *The International Chernobyl Project: an Overview*, 52.

[42] Ibid., 52.

[43] Lina Kostenko, quoted in Boris Evgen'evich Paton and Stepan Petrovych Pavli'u'k, eds., *Chernobyl Concerns Everyone: Euphoria, Disaster, Overcoming, Waste, Memory* (Kyiv: Vyd-vo Dnipro, 2000), 120.

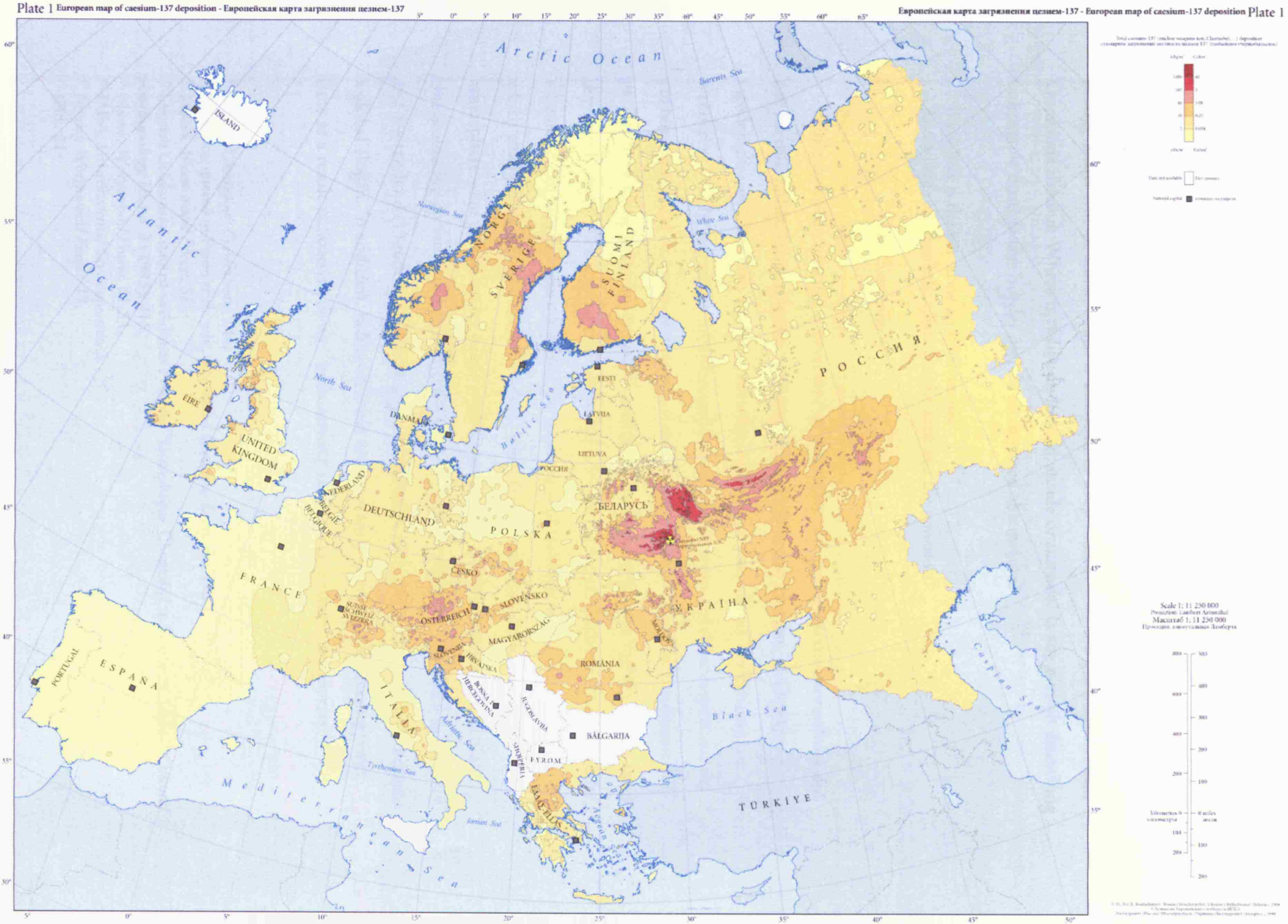
Plate 1 European map of caesium-137 deposition - Европейская карта загрязнения цезием-137
Европейская карта загрязнения цезием-137 - European map of caesium-137 deposition Plate 1
Arctic Ocean
Barents Sea
Atlantic Ocean
Norwegian Sea
White Sea
North Sea
Baltic Sea
Black Sea
Caspian Sea
Mediterranean Sea
Tyrrhenian Sea
Adriatic Sea
Ionian Sea
ISLAND
NORGE
SVERIGE
SUOMI FINLAND
РОССИЯ
EESTI
LATVIJA
LIETUVA
EIRE
UNITED KINGDOM
DANMARK
NEDERLAND
BELGIE BELGIQUE
DEUTSCHLAND
POLSKA
БЕЛАРУСЬ
FRANCE
ČESKO
SLOVENSKO
ÖSTERREICH
SUISSE SCHWEIZ SVIZZERA
MAGYARORSZÁG
УКРАЇНА
ROMÂNIA
PORTUGAL
ESPAÑA
ITALIA
SLOVENIJA
HRVATSKA
BOSNA I HERCEGOVINA
SHQIPËRIA
F.Y.R.O.M.
БЪЛГАРИЯ
ΕΛΛΑΣ ΤΟΥΡΚΙΥΕ
Scale 1: 11 250 000
Projection: Lambert Azimuthal
Масштаб 1: 11 250 000
Проекция: азимутальная Ламберта

Figure 3

healthy land [...] is irregular, almost random. The radiation cannot be contained by the barbed wire installed by the army."[44] A poignant photographic image (Figure 4) captured by Kostin shows the CEZ border in practice: on the 'safe' side a farmer ploughs a field, whilst on the other, 'dangerous' side, a soldier wearing a gas mask looks on. The two men occupy either side of a line, which is intended to keep radiation in and everyday life out. Questions abound: Where is radiation located, inside or outside? Is the plough disturbing radioactive dust? Is this border merely an imposed abstraction?

> But where is the non-zone on Earth today?
> And where's the borderline between the zone and the non-zone?
>
> (Lina Kostenko)[45]

While mapped radiation is presented as stationary, the represented radionuclides do not sit still; rather, "they migrate, or move, from one place to another."[46] Dmytro Grodzinsky, an Ukrainian scientist, describes radioactive particles as "everlasting wanderers."[47] The movement of radionuclides may result from activities carried out on contaminated land or, more arbitrarily, from weather patterns: "parched conditions are perfect for stirring up radioactive dust, radiation readings are always slightly higher on dry, windy days."[48] Following the Chernobyl accident, radiation patterns shifted greatly: a schematic diagram in Figure 5 shows the movement of the radioactive cloud over Europe, which changed its configuration on a daily basis. Radionuclides released into the atmosphere were picked up by winds and deposited all over the continent via rainfall, contaminating an estimated area of 200,000 km^2, with 'hotspots' as far afield as Norway and Switzerland (Figure 3).[49] "*Chernobyl ist Überall*, Chernobyl is everywhere"[50] became a global slogan. In addition, radiation levels are constantly changing (decreasing) over time as a result radioactive decay: "radioactivity is, by its very nature, temporary."[51]

[44] Kostin, *Chernobyl: Confessions*, 144.
[45] Kostenko, quoted in Paton et al., eds., *Chernobyl Concerns Everyone*, 195.
[46] Mycio, *Wormwood Forest*, 51.
[47] Dmytro Grodzinsky, quoted in Adriana Petryna, "Sarcophagus: Chernobyl in Historical Light," *Cultural Anthropology* 10, no. 2 (1995): 215.
[48] Mycio, *Wormwood Forest*, 51-53.
[49] IAEA, *Environmental Consequences*, 2.
[50] Mycio, *Wormwood Forest*, 17.
[51] Ibid., 21.

Figure 4

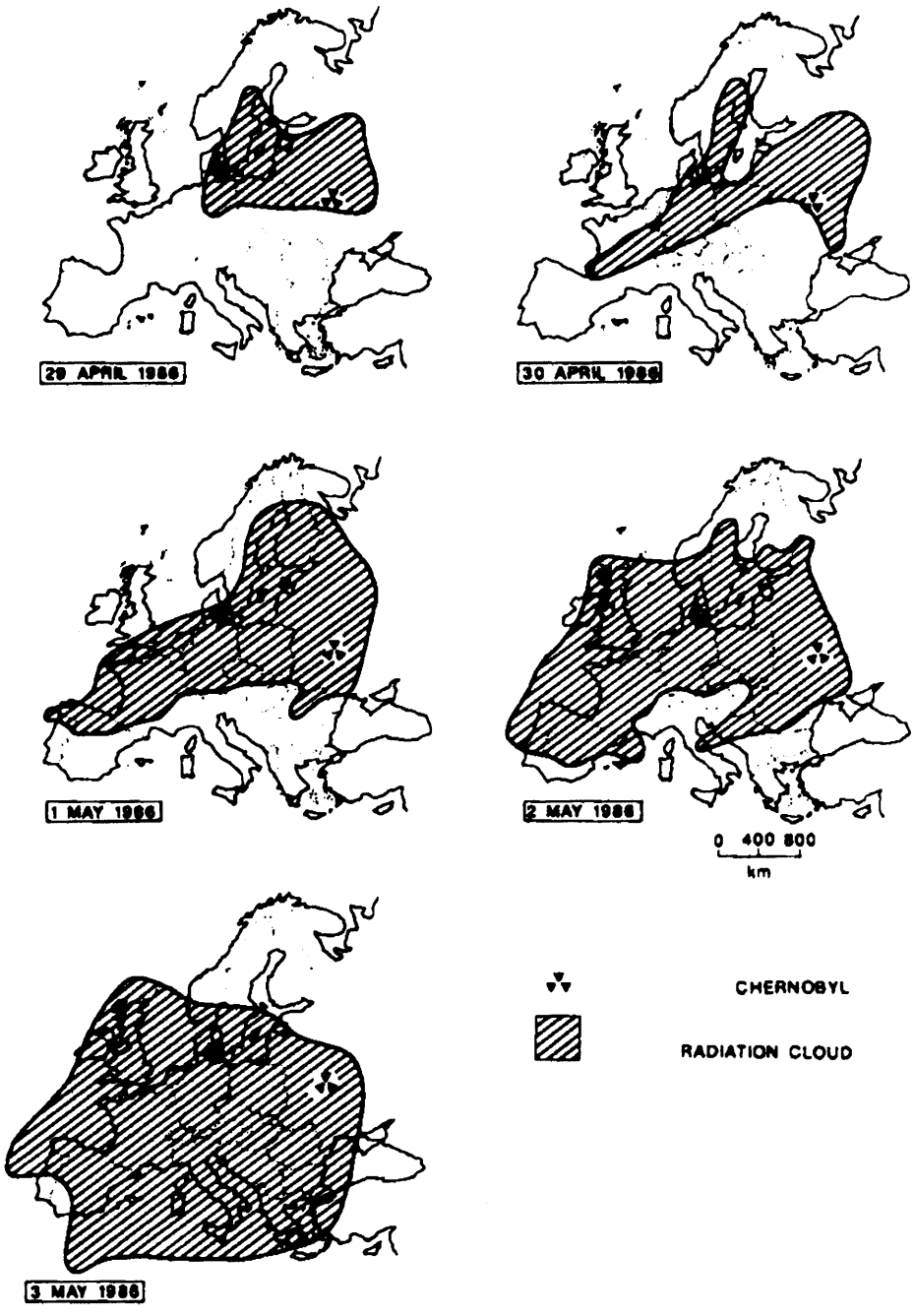
29 APRIL 1986
30 APRIL 1986
1 MAY 1986
2 MAY 1986
0 400 800
km
3 MAY 1986
CHERNOBYL
RADIATION CLOUD

Figure 5

In this sense, radiation is perhaps better considered as essentially bound*less*, in space and in time. Is then a map, which is a fixed and static image, a suitable representation for something so unstable and shifting? According to Fiorenza, "the circle traced around Chernobyl [Figure 2] is an abstraction, a desire to circumscribe something that is not circumscribable."[52] A similar observation could be made of the more detailed surface contamination maps (Figures 1 and 3): they are merely abstractions – desperate attempts to confine something that resists containment (conceptually and physically). Although the caesium-137 deposition maps were adopted to inform official policies (on resettlement and lifestyle restrictions) and are often reproduced in the literature as comprehensive representations of radiation levels, they hide as much as they reveal: "there is no simple relationship between surface contamination level and dose rate."[53] If someone lives on contaminated land it does not mean he or she will necessarily be exposed to (dangerously) high levels of radiation. And what is a dangerous level of radiation anyway?

There is no definitive 'radiation map' after Chernobyl. Caesium is just one of the (potentially) harmful radionuclides released at Chernobyl and was chosen in the mapping of contamination "because it is easy to measure and is of radiological significance."[54] The other dose-contributing releases included strontium (^{90}Sr), plutonium (^{239,240}Pu) and americium (^{241}Am);[55] each nuclide behaves in a unique way, with differing deposition patterns and half-lives. Numerical measures of a given radionuclide,[56] transposed as lines and colours on two-dimensional maps, thus represent only a partial story, a small glimpse of intangible radiation.

The laws governing radioactivity defy our limited understanding of space: this intangible substance fills and occupies it in dimensions that we cannot readily comprehend. Representations (such as maps) translate, in concrete and formal ways, the intangible into something we can sense and interpret. But what do they hide from us?

[52] Dante Fiorenza, "Chernobyl, a phantom city," *Spazio e Società* 12, no. 45 (1989): 67.
[53] "There is no simple relationship between surface contamination level and dose rate because of differences in transfer factors, living conditions and eating habits." (IAEA, *The International Chernobyl Project: an Overview*, 52).
[54] IAEA, *Environmental Consequences*, 3.
[55] Ibid., 145.
[56] The methods and units of measuring 'radiation' are similarly heterogeneous: radiation is numerically represented in becquerels (Bq), sieverts (Sv), millisieverts (mSv), microsieverts (μSv), roentgens (R), curies (Ci), rads (rad), counts per minute (cpm), disintegrations per minute (dpm), roentgens equivalent in man (rem), millirems (mrem)... the list goes on.

What (perhaps unknowable) information do they purport to convey, but in actuality conceal or obscure? What happens when the form intended to 'make sense' makes no sense?[57] If the representation is meaningless, then is it an empty space?

The lines and contours representing radiation on maps may be criticised as mere abstractions (as meaningless, as 'empty'), as attempts to formalize and conceptually tie down something essentially boundless. However, the two-dimensional markings correspond with actual, physical space. An estimated five million people live in areas contaminated with radionuclides as a result of the Chernobyl accident.[58] These are not just 'empty' representations but designate real tracts of land where human life and everyday activities are forbidden by law. The CEZ is not simply an abstract circle but demarcates habitable from uninhabitable territories, indicating what types of human activity may or may not be carried out in a given space.

[57] Much of the general population whose lives and livelihoods were directly affected by these maps did not understand the "policies on protective measures and relocation." (IAEA, *The International Chernobyl Project: an Overview*, 52).
[58] WHO, "Chernobyl: the True Scale of the Accident."

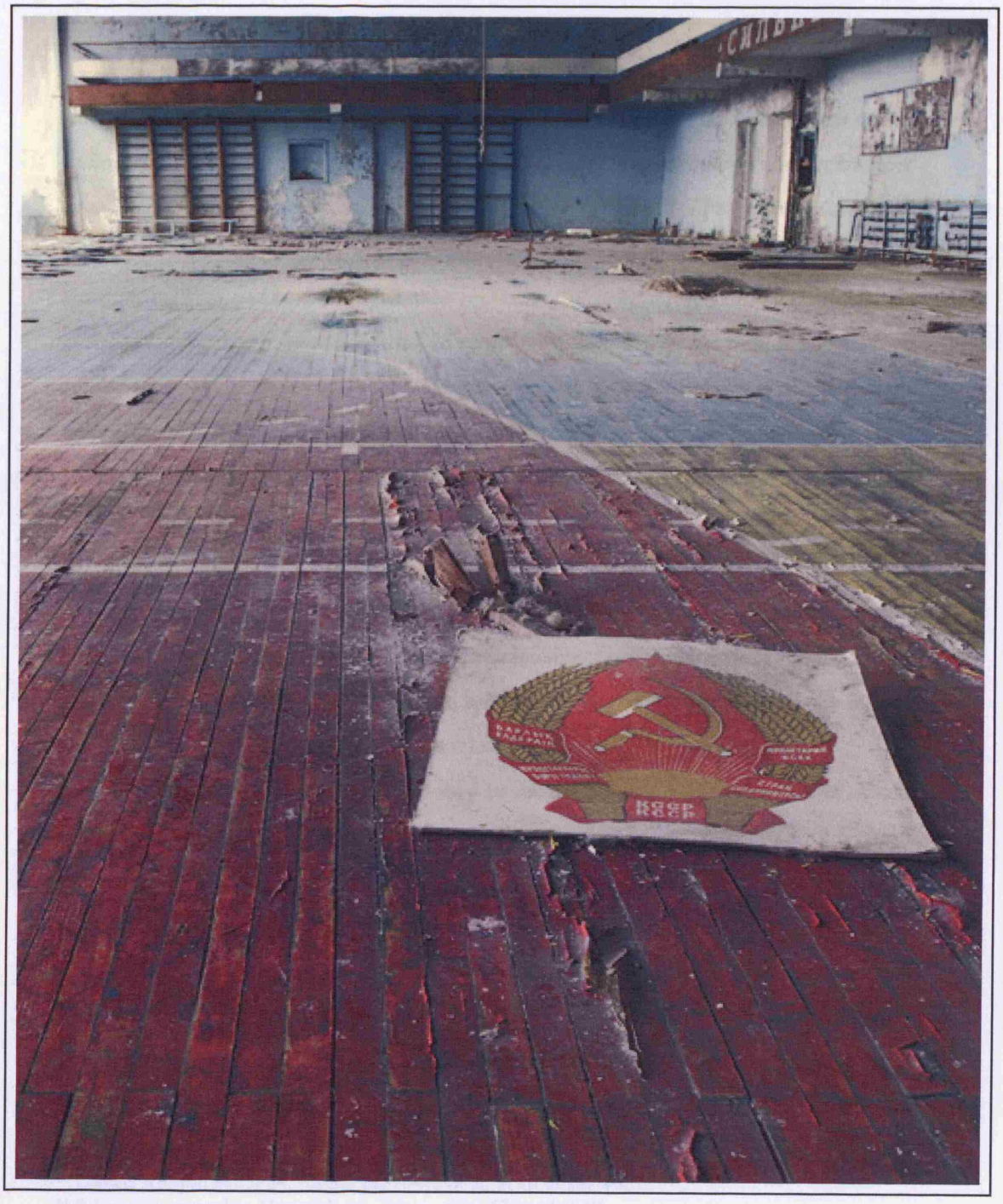

Figure 6

No-man's-land

In April-July 1986, 116,00 people were evacuated from the CEZ and other areas of high radioactivity and resettled in non-contaminated regions; in subsequent years the number of evacuated and relocated people rose to more than 350,000.[59] *The explosion at the Chernobyl NPP caused an expulsion of life, a mass eviction of human beings from the surrounding area and beyond. This mass movement of people resulted in a dramatically changed landscape of abandoned and, in some cases, completely razed dwellings and settlements. Architectures and spaces designed for habitation and framing the activities of daily life were completely emptied of their human (and gradually also material)*[60] *contents. "The village street, the field, the highway – all of it without any people. A highway to nowhere."*[61]

Never having visited this emptied space I can only gain an outsider's perspective informed by representations of it. Every representation available to me is necessarily mediated, and through the process of mediation the real space is attributed another layer of meaning, another story, another myth. From a detached standpoint I perceive that there is something fascinating about the abandoned landscape left in Chernobyl's shadow. There is something engaging and intriguing about this space that has resulted in a proliferation of experiences and representations (from tourism to videogames), which document and present the CEZ to an outside audience.

In 2002, a Chernobyl tourist trade was established, with companies such as Solo East Travel, SAM Travel Company and the Ukrainian Youth Hostel Association offering "extreme"[62] package day tours of the 'forbidden' CEZ (with prices ranging from $100-

[59] WHO, "Chernobyl: the True Scale of the Accident."
[60] Looters stripped buildings, villages and towns of all items of any worth.
[61] Belarussian, quoted in Alexievich, ed., *Voices from Chernobyl*, 69.
[62] Tours to the CEZ are advertised under the heading 'extreme tourism:' "visit the site of the worst environmental disaster in history (Ecological/extreme tourism)." ("Chernobyl Tour: visit site of the worst environmental disaster in history (Ecological/Extreme Tourism)," SAM Travel Company, http://www.ukrcam.com/tour/tour_3.html).

600).[63] As a result, countless Chernobyl blogs have sprung up on the internet,[64] penned by tourists recounting their experiences of the disaster and invariably illustrated with photographic documentation of the 'sights:' recurring imagery includes Pripyat's deserted gymnasium (Figure 6) and the city's never used fairground (Figure 7). In addition to these amateur representations, professional film-makers, photographers, sound artists and writers have been drawn to the CEZ, producing internationally distributed artefacts (articles, books, films, sound recordings and television documentaries) for consumption by 'virtual visitors.' The spaces of Chernobyl have further entered the realm of interactive science fiction via the medium of videogames: *S.T.A.L.K.E.R: Shadow of Chernobyl* is set in the CEZ and includes a detailed rendition of Pripyat and the Sarcophagus, whilst virtual landscapes and architectures in *Call of Duty 4: Modern Warfare* and *Half Life 2: Episode I* are modelled on Pripyat.[65] There must be a demand, an audience, that's driving the production of this material, of these (direct and mediated) experiences of Chernobyl's spaces.

The representations under discussion here emphasise the *emptiness* of the CEZ. They pointedly select, present and reproduce the absence of something once present, i.e. human life and activity. I suggest that such representations contribute to and sustain a myth of desolate space. What is it about this *absence* that is so seductive – that demands to be seen, experienced, sensed and communicated?

Pripyat, a model 1970s Soviet town situated 3-kilometres from the Chernobyl nuclear power plant, stands empty of inhabitants. It has been dubbed a "ghost city,"[66] "the world's most radioactive city,"[67] "the world's youngest city... [and] it's shortest lived."[68]

[63] For examples and itineraries of tours beings offered, see the following websites: "Chernobyl Tour – Ecological Tour to the Chernobyl Nuclear Power Plant," Solo East Travel, http://www.tourchernobyl.com; "Chernobyl Tour, Ukraine: Visit the Site of the Nuclear Disaster/Accident," Ukranian Web, http://www.ukranianweb.com/chernobyl_ukraine.htm; "Chernobyl Tour: visit site of the worst environmental disaster in history (Ecological/Extreme Tourism)," SAM Travel Company, http://www.ukrcam.com/tour/tour_3.html; "Extreme Tour: Dead Chernobyl," Ukrainian Youth Hostel Association, http://www.hihostels.com.ua/en/excursions/chernobyl.tour/.

[64] For examples of tourist blogs, see these two websites: Mark Resnicoff, "My Journey to Chernobyl: 20 Years After the Disaster," 2006, http://nikongear.com/Chernobyl/Chernobyl_9.php; Alexandr Vikulov, "Lost City of Chernobyl," English Russia, 2006, http://englishrussia.com/?p=293.

[65] "Pripyat," Wikipedia, http://en.wikipedia.org/wiki/Pripyat.

[66] Elena Filatova, "Kiddofspeed – GHOST TOWN – Chernobyl Pictures – Elena's Motorcycle Ride through Chernobyl," Kiddofspeed, http://www.kiddofspeed.com.

[67] John Darwell, *Legacy: Photographs Inside the Chernobyl Exclusion Zone* (Stockport: Dewi Lewis Publishing, 2001), 2.

[68] Mycio, *Wormwood Forest*, 2.

Figure 7

The city was highly contaminated with radioactive substances,[69] the most grave of which, plutonium, has an estimated half-life of 24,000 years. Pripyat was transformed from a vibrant city with a young population[70] into a place incapable of supporting human life: radioactivity has rendered its buildings, streets, squares and parks mortally perilous. All 47,000 citizens were evacuated and will never return home again: this city will stand empty for all imaginable time; it has been made irrevocably uninhabitable.

This image of a permanently emptied settlement once thriving with life speaks as a potent symbol. Pripyat represents a *real* dystopic space: here on Earth, human beings have inadvertently created their own no-man's-land. We have converted (un-built?) what was once a living space into the very opposite, an uninhabitable space: we have created an environment, once called 'home,' that expels and repels us. Pripyat's former inhabitants have been permanently exiled; in the words of Fiorenza, "people are rejected by the very spaces that used to represent them."[71]

Over recent years, the CEZ has been attracting a steadily increasing number of visitors[72] and has become "Ukraine's most talked about tourist attraction."[73] It is forbidden to enter the zone unsupervised and tourists are accompanied at all times by a guide. Images of tourists (incongruously) occupying the otherwise deserted spaces (Figure 7) suggest the commodification of Chernobyl as an 'attraction' is catering for an extreme kind of thrill seeking. "The most popular destination came last: Pripyat, a city left behind."[74] The emptied city has become an unlikely destination, topping the list of 'sights' on the disaster tours. The Chernobyl accident has put an anonymous city (a "nowhere?"[75]) composed of monotonous, modernist, high-rise concrete blocks (Figure 8) on the map; an emptied city has become a 'somewhere.' Pripyat has been transformed from a banal site of habitation into an 'attraction:' a place to be consumed, photographed, commodified. There is something here that demands to be seen, that demands to be re-

[69] "The highest level of urban radioactive contamination is to be found in Pripyat." (IAEA, *Environmental Consequences*, 29).
[70] In Pripyat the average age was 26 and over a 1,000 babies were born annually. (Paton et al., eds., *Chernobyl Concerns Everyone*, 33).
[71] Fiorenza, "Chernobyl, a phantom city": 64.
[72] " 'Few tourists came in 2002 [...] in 2004 about 870 arrived.' " (Marina Polyakova, quoted in C. J. Chivers, "A grim tourist hot spot: Chernobyl," *International Herald Tribune*, June 15, 2005).
[73] Sarah Johnstone, "Strange and unsettling: my day trip to Chernobyl," *The Observer*, October 23, 2005.
[74] Chivers, "A grim tourist hotspot."
[75] James Howard Kunstler, *The Geography of Nowhere: The Rise and Decline of America's Man-Made Landscape* (New York and London: Simon & Schuster, 1993).

Figure 8

presented. In the words of a tour guide, "The cultural centre was over there. And that building was a hotel. Do you want to stay a little? Take some pictures? Most people who come here do."[76]

The architectures of Pripyat still stand yet are referred to in the past tense: without their inhabitants they have ceased to serve a function. In the absence of human life and activity, architecture is deemed life*less*, 'dead.' Human presence is necessary to enliven space and fill it with meaning. Is a city without citizens still a 'city?' Is a building without inhabitants still a 'house?' Does the emptying of occupants render it anti-architecture: a "no-place,"[77] an "anti-city" [78] (Figure 8)?

A trip to the CEZ is not the only way to take a tour of the 'zone:' multi-media representations of the area are attracting wide audiences of virtual 'visitors.' Of particular interest in these representations is the obsessive fascination with and inevitable re-presentation of devastating emptiness, of Pripyat's empty spaces in particular. Out of a vast human landscape adversely impacted by the Chernobyl accident I suggest that it is this place, the permanently uninhabitable city, which draws and holds an outside public's attention.

Elena Filatova's online blog (www.kiddofspeed.com) documenting her lone motorcycle rides through the CEZ is an online phenomenon, "her travelogue quickly became one of the most linked-to sites on the net."[79] She sketches in words and photographic imagery a rough history of Chernobyl alongside her first-hand experiences of biking down empty streets and exploring abandoned settlements. Whilst Filatova's story has been ousted and condemned as "fake,"[80] as "more poetry than reality" (an

[76] Yura, Chernobylinterinform guide, quoted in Elin Olsson, "A Redundant Landscape," in Katja Grillner, Per Glembrandt and Sven-Olov Wallenstein, eds., *01. AKAD – Experimental Research in Architecture and Design – Beginnings* (AKAD through AXL Books, 2005), 107.
[77] Mycio, *Wormwood Forest*, 23.
[78] Fiorenza, "Chernobyl, a phantom city": 64.
[79] "Motorcycle Trip Through Chenobyl," The Museum of Hoaxes, May 21, 2004, http://www.museumofhoaxes.com/hoax/weblog/chernobyl_trip/.
[80] In the words of author and researcher Mycio, "I am sorry to report that much of Elena's story is not true... the motorcycle story was such an outrageous fiction." (Mary Mycio, comment on "Re: Chernobyl motorcycling fake! Chornobyl 'Ghost Town' story is a fabrication," Urban Exploration Resource Forum, comment posted April 30, 2004, http://www.uer.ca/forum_showthread_archive.asp?threadid=8951).

Figure 9

Figure 10

accusation Filatova partly acknowledged),[81] her website continues to attract a huge audience.

Filatova's site (www.kiddofspped.com) is constructed of 27 'chapters,' 17 of which represent Pripyat. Haunting images of the emptied city, emotively referred to by the site's author simply as 'Ghost Town,' dominate the content of the travelogue, accompanied by anecdotal quips and observations. Deserted architectures are represented in a bleak state of vacuity, like the bike shop in Figure 9, they appear as mere husks of buildings with windows yawning open to frame cavernous black depths. A bus-stop, a café, a children's fairground, a gymnasium, a hotel, a phone booth, a post office and a swimming pool - all empty of people - are particularly lonely and evocative sights... spaces once buzzing with life, now 'dead.' These skeletons are sometimes enlivened with the image of the author herself: Filatova juxtaposes herself against the lifeless background – photographic 'proof' of her visits to the zone (Figure 10). The author constructs a myth of herself as a daring, unguided visitor; an intrepid, fearless explorer.

The architectural images are complemented by close-up shots of traces and fragments of departed human life, the things left behind, the material evidence that people once inhabited these spaces (in the not too distant past): the camera lens focuses our attention on a fading family photograph, a pair of disintegrating shoes, an abandoned doll, toppled signs and Communist banners, uncollected post and newspapers dated April 1986. This imagery is highly evocative of human life now absent, a series that culminates in imagery from an abandoned Kindergarten (Figures 11 and 12). These images are particularly affective, setting in opposition the 'memory' of young spirits who once filled these spaces with its current status of desertion: "the remaining photos don't need any comments – they tell the Ghost Town's story in a way that no words can."[82] There is apparently something self-explanatory, self-evident, about the message of these abandoned spaces – emptiness speaks for itself. Absence is made present, becomes palpable, through what is left behind, through unlived in and unutilised architectures, through fragments of past inhabitation, through traces of the banal activities of daily life. A similar sentiment is

[81] According to Wikipedia, on May 16, 2004 Filatova posted to her website that she was "being accused that it was more poetry in this story than reality. I partly accept this accusation, it still was more reality than poetry." On May 24th she had removed this note. ("Elena Filatova," Wikipedia, http://en.wikipedia.org/wiki/Elena_Filatova).
[82] Filatova, "Kiddofspeed."

Figure 11

Figure 12

expressed by Imogen Wall, who, after visiting Pripyat, writes: "there is no museum exhibit, no tour guide that could explain as eloquently as this the awfulness of such abandonment."[83] The evocative power of palpably present absence is fittingly described by Tim Edensor, who observes that in abandoned architectures,

> [T]he visible and the invisible, the material and the immaterial, intersect, for the people who made them, designed them, inhabited them, passed through them, [...] abandon[ed] them and are not there. And yet their absence manifests itself as a presence through the traces, shreds and silent things that remain, in the objects we half recognise or imagine.[84] [85]

The images and accompanying texts presented by Filatova are highly evocative and emotive: she has carefully framed, selected and reproduced materials that represent, make palpable, the *absence* of people. And with this absence is an associated "awfulness," a horrific, "gothic aesthetic."[86] In her words, "So much emptiness builds up a creepy feeling, like something evil is hidden in this emptiness [...] here you feel the presence of death."[87] The presence of a child's gasmask (Figures 11 and 12), for example, is a macabre reminder of the threatening *emptier* of these spaces, of the ever-lingering radioactive danger. Filatova has been accused of staging sensational scenes to photograph, of moving objects around to generate shocking images and provocative juxtapositions. This recalls the persuasive power of photography to bring out, to emphasise, a particular aspect of what is 'really there.' What is constructed here is a space of human tragedy and the despair associated with that – of lives stopped, of human activity halted, of departed civilization. All that remains are the rusting skeletons and disintegrating fragments of former habitation, occupation and leisure.

[83] Imogen Wall, "Postcard from Hell: Eighteen years ago, it was the site of the world's worst nuclear reactor disaster. Now Chernobyl is becoming a tourist attraction," *The Guardian*, October 18, 2004.
[84] Edensor, *Industrial Ruins*, 154.
[85] A parallel observation is made by Salavatore Settis: "ruins signal simultaneously an absence and a presence; they show, they *are*, an intersection of the visible and the invisible. Fragmented, decayed structures, which no longer serve their original purpose, point to an absence – a lost, invisible whole." (Salvatore Settis, Director, The Getty Institute, quoted in Michael S. Roth, with Claire Lyons and Charles Merewether, *Irresistible Decay: Ruins Reclaimed* (Los Angeles: The Getty Research Institute, 1997), vii).
[86] Edensor describes the "gothic aesthetic" in relation to ruined space: "For a gothic sensibility, ruins possess the attraction of decay and death. These pleasures are of a vicarious engagement with fear and a confrontation with the unspeakable and one's own vulnerability and mortality, a diversion which is also a way of confronting death and danger and imagining it in order to disarm it, to name and articulate it in order to deal with it." (Edensor, *Industrial Ruins*, 13-14).
[87] Elena Filatova, "elenafilatova.com," Angelfire, http://www.angelfire.com/extreme4/kiddofspeed/index.html.

> What does empty space lack and so induce fear that inhabited space fulfils? [...][I]t points to something which no longer fulfils its functions, and yet remains a thing resembling the image of that function.[88]

Through her travelogue, Filatova constructs (and disseminates to millions) not only a myth of herself, as a lone biker and explorer of forbidden territory: "girls on fast bikes go anywhere they want,"[89] but also of the place she visits and 'documents.'

Another layer of constructed meaning that has been attributed to the empty city is a distinctly aesthetic one: the emptied spaces of Pripyat have entered the realm of art.[90] This becomes clear when flicking through Peter Polidori's bestselling book,[91] *Zones of Exclusion: Pripyat and Chernobyl* (2003), or listening to Jacob Kirkegaard's audio CD, *Four Rooms* (2006). Polidori's large-format, hardback publication of photographic imagery (which has no captions – the photographs presumably 'speak for themselves') presents itself, in style, content and quality, as an art book. While Filatova's imagery is endearing in its amateurish, casual style, which calls attention to her own presence in the space, Polidori's high-quality, high-resolution, high-sheen images tell a somewhat different story, suggesting a removed, omniscient observer – we almost forget there is a person operating the camera. The themes and predominant imagery is comparable to that found on Filatova's website, with page after page representing the physical traces left behind after human beings have fled the scene. For example, the book's front cover (Figure 13) is an interior shot of an abandoned kindergarten, on the blackboard it is handwritten in Ukrainian: "There's no return. Farewell. Pripyat, 28 April 1986"; children's furniture, books and play things lie chaotically scattered across the room, everything covered in a thick layer of dust and debris, the faded green paint cracking and peeling off the wall to reveal patches of mould. However, unlike the travelogue, this series of imagery is an intensely rich visual journey that seduces the eye with its appealing

[88] Dylan Trigg, "Sheltering: Kenophobia," Side Effects, April 11, 2005. http://side-effects.blogspot.com/2005/04/sheltering-kenophobia.html.
[89] Filatova, "Kiddofspeed."
[90] Indeed, Filatova's project could itself be regarded as a provocative art project, a fictionalisation of real space.
[91] In 2003, Polidori's book entered the top ten bestseller list of photography books in New York, in joint tenth place alongside *The Photo Book* and *Earth From Above*. ("The Art Book Winter 2003 Bestseller Lists," *The Art Book* 11, no. 2 (2004): 64).

Figure 13

compositions, rich details and vibrant, luminous colours.[92] Deserted dolls and teddies, overturned furniture, rotting detritus, smashed windows, scattered contents of draws and shelves, rusting bed frames, torn fabrics, peeling wallpaper, disintegrating objects, spreading mould and gathering dust are not conventional objects of 'beauty.' But under Polidori's artistic interpretation such subjects have been *made* beautiful – abandonment has been highly aestheticised via the medium of the camera.[93]

This sumptuous, appealing aspect stands in stark opposition to the tragedy and horror associated with Chernobyl that is simultaneously conveyed in these images of abandonment and desertion. The content disturbs but the way it has been represented is unquestionably seductive. Here, tragedy is rendered aesthetic, horror beautiful, desolation attractive.

Kirkegaard's audio-CD *4 Rooms* is a digital representation of the sonic presences that occupy four emptied architectures of Pripyat: "Church," "Auditorium," "Swimming Pool" and "Gymnasium." Kikegaard borrowed a technique from Alvier Lucier,[94] in effect multiplying the existing sounds to produce something almost akin to 'music.' The sound artist stepped out of the rooms whilst the recording was in process: the represented spaces were thus completely *empty* of their human contents. In Kirkegaard's words,

> An empty room might be 'nothing' – i.e. dead in itself – or "something" – i.e. alive and reverberating – but if it suddenly wakes up and starts to sing, something extraordinary must have happened.[95]

The four tracks consist of indeterminate, distorted sounds: buzzing, clanging, droning, echoing, fluttering, humming and whirring make up this strange music – these are unfamiliar, chilling, troubling sounds. Each track is surprisingly distinct in tone and overall affect. I found "Gymnasium" disquieting and gnawing: unabated, piercing high pitched noises get shriller and more painful to the ear for a long 10 minutes before fading away; "Swimming Pool" is haunting: the constant background drone irregularly and

[92] I have deliberately chosen not to reproduce Polidori's imagery here as the processes of scanning and printing degrade and change the image quality.
[93] I am reminded of the highly evocative, sumptuous work of Jane and Louise Wilson, who have made highly aesthetic films of deserted architectures.
[94] This involved taking a recording of 10 minutes and playing it back into the room, recording it again. This process was repeated up to ten times.
[95] Jacob Kirkegaard, "Concert Room," *Leonardo Music Journal* 16 (2006): 72.

unpredictably interrupted by echoing squeaks, squawks and whoops, chillingly reminiscent of human voices. The recordings were taken in public architectures, spaces formally occupied by human beings engaged in community and leisure activities: prayer, exercise, play and entertainment. The discord, the stark opposition, between this past fullness (of bodies and activities) and present emptiness (absent life and corresponding inertia) is made aurally palpable. The semantic resonances offered by the track names allow us to project our own associations and recollections into the soundscapes, enabling us to imagine "a distant echo of what life was like here."[96] It encourages listeners to construct narratives around indeterminate sound.

The aural experience of emptiness, of *silence* (the absence of sound) in Pripyat is a poignant experience, frequently recalled by visitors to the empty city: "a deathly quiet descends,"[97] "the silence here is deafening;"[98] "the first tour groups here were so unnerved by the total silence that they asked to leave."[99] Kirkegaard's CD present the listener with anything but silence, however: there is a definite *presence* here that my ears register. After listening to this recording, my aural abilities were unexpectedly heightened, enabling me to sense with unusual clarity the (normally suppressed and unacknowledged) sounds of the architecture.[100]

house
itself
is musical:
sound of the
wind.

(John Cage)[101]

Thinking about the transition of real space into art space, of the deliberate, artistic elevation of the 'ordinary landscape'[102] of Chernobyl, I am reminded of the sublime aesthetic. The sublime is defined as an ambivalent affect, consisting of "two contradictory

[96] Filatova, "Kiddofspeed."
[97] Johnstone, "Strange and unsettling."
[98] Filatova, "elenafilatova.com."
[99] Wall, "Postcard from Hell."
[100] The hum of the central heating, the buzz of electricity, the rhythm of wind making contact with the window all became perceptible. My encounter with the (albeit, heightened and mediated) sounds of empty space rendered my perception of space aurally full.
[101] John Cage, *Empty Words* (Middletown, Connecticut: Wesleyan University Press, 1979), n.p.
[102] "The landscape was ordinary." (Olsson, "A Redundant Landscape": 110).

sensations: pleasure and displeasure, attraction and repulsion."[103] Filatova expresses such a sentiment, "something that attracts and repels me both at the same time... it [Pripyat] is divinely eerie."[104] In the sublime, the apparently opposing emotions of fear and fascination, horror and desire, are united. That which disturbs and unsettles, once mitigated and kept at a safe distance, can become pleasurable and seductive. "Whatever is in any sort terrible [...] is a source of the sublime."[105] As outsiders, we are emotionally and physically removed from the space of horror and danger: sitting behind a computer screen, listening to a CD or flicking through a book, the real space is kept at a safe distance. The danger and tragedy thus removed can become aesthetic, sublime?

I have accumulated a patchwork impression of Pripyat through its various mediations: I can only perceive, and hence know, this space in terms of what others have chosen to re-present. This empty space is invariably presented as a dystopic space, the site of nuclear disaster that has obliterated the population. This *absence* of human life speaks to our imagination, offering a glimpse of something normally only encountered in the realm of science fiction: "a post-apocalyptic landscape."[106] The represented abandoned spaces speak of life banished forever and of humanity's potential to render our planet uninhabitable, to destroy, to empty, ourselves. In reference to the abundance of imagery reproduced in the popular press of Pripyat's deserted architectures, Asa Boholm observes that the city has become a "metaphor for doom and decay, for collapsing, eroding civilization, all caused by the failure of nuclear power."[107] It is precisely this sort of association that representations of emptiness (absence of people) propagate and encourage: associations of death, disaster, horror, tragedy, crumbling civilization and finality. A dystopic space is constructed and communicated. Chernobyl was a disaster, but I suggest that is made all the more disastrous through such representations.

The curious thing is that we, as removed onlookers, seem to *enjoy* this – we want to be scared; we need to see and experience disaster spaces. We want and crave this dystopic

[103] Jean-François Lyotard, *Lessons on the Analytic of the Sublime* (Stanford: Stanford University Press, 1994), 109.
[104] Filatova, "Kiddofspeed."
[105] Edmund Burke, *On Taste, On the Sublime and Beautiful, On the French Revolution* (New York: Collier, 1909), 36.
[106] Wall, "Postcard from Hell."
[107] Asa Boholm, "Visual images and risk messages: commemorating Chernobyl," *Risk Decision and Policy* 3, no. 2 (1998): 136.

space and are thus being catered for with "extreme tourism," adventure blogs, graphic imagery and unsettling sounds. "The Chernobyl explosion gave us the mythology of Chernobyl [....] People who weren't there *love* to be frightened."[108] Is tragedy attractive? Is horror seductive? Is terror enjoyable? It seems that through representations (and guided tourism) the terror, the danger, is kept at a safe enough distance for it to become something consumable, something frightfully pleasurable.

The production of a tourist industry and multi-media representations has led to a layering and construction of associations and sentiments around the emptied spaces of Chernobyl. Olsson describes her desire to mythologize the experience of this place: "It was all too dangerous. I tried to experience this as a sensation. To force a pretend thing to be real. Like a saga or a myth."[109] There is an evident need to mythologize, to construct stories and meanings, around these spaces. The empty spaces of Pripyat have become a 'tourist attraction,' have been transformed into 'art' and have been fictionalized on the internet and through videogames. I suggest that these empty spaces inspire myth making, the construction of multiple layers of story telling and association. In the words of Jonathan Bell, "it is the empty city that continues to lurk in our culture, a place for the imagination [...] to run wild."[110]

[108] Belarussian, quoted in Alexievich, ed., *Voices from Chernobyl*, 127.
[109] Olsson, "A Redundant Landscape," 104.
[110] Jonathan Bell, "Letters from London: London Sprawling," *The Morning News*, June 6, 2006.

Figure 14

Ecology

A little radiation is very good for you, it will make your hair grow, look at the vegetables and flowers![111]

The CEZ has frequently been represented (and mythologized) as a nuclear 'wasteland:' a 'dead zone,' incapable of supporting life. Yet while human life has been banished from its former habitat, the spaces they left behind are far from life*less*. Other living things have been quick to 'move in' and fill the vacated space. What becomes of a space emptied of its human contents? What becomes of the city, the village, the street and the field *empty* of us? In the case of Chernobyl, the natural world is vigorously reclaiming the spaces shaped by human habitation and activity. Wild species of plants and animals are progressively occupying the empty spaces, filling in the gaps and voids in a landscape once dominated by civilization and cultivation. Without humans, nature is permitted to 'move in,' to inhabit space freely and without restriction. The space empty of humans, is *full* with other living things. The CEZ is thus far from a lifeless place: "The cuckoo is cuckooing, the magpies are chattering, roes are running [...] You can resettle people, but the elk and the boar, you can't."[112]

Looking at recent photographs of Pripyat taken in 2006 (Figures 8 and 14), I perceive that the 'city' is in a process of transformation: it is an amalgam, a hybrid, of architecture and forest. According to Olsson, "high buildings could be seen behind the curtain of trees. Concrete, brick, steel, tarmac, and splintered glass amidst fern, willow, pine, apple trees, vine."[113] The plants are encroaching, growing denser and higher, whilst the buildings in their midst begin to crumble (Figure 15). Mycio suggests a comparison with ancient ruins: "Pripyat," the modern city, "was coming to resemble one of those fabled lost cities, devoured by jungle."[114] There is a sense in which nature is not only occupying abandoned architectures, but is invading and consuming them. Outside the urban setting of Pripyat, this insatiable colonisation of human spaces by intrepid wildlife is particularly blatant and

[111] Ukranian, quoted in Darwell, *Legacy*, n.p.
[112] Belarussian, quoted in Alexievich, ed., *Voices from Chernobyl Voices from Chernobyl*, 49.
[113] Olsson, "A Redundant Landscape," 106-107.
[114] Mycio, *Wormwood Forest*, 5.

Figure 15

visible (Figure 16). Here, wildlife has almost obliterated and erased the former occupants' habitats, consuming and destroying doors, walls, windows, roofs. In the countryside and in the villages, the distinction between buildings and wildlife, architecture and nature, is becoming hard to discern. This invasion and destruction is observable in a series of photographic images by Polidori (2 of which are reproduced in Figure 16) and is suggested by Mycio's description of the fate of vernacular architecture in the CEZ:

> [T]he encroaching forests have consumed much of the wood-and-plaster cottages [...] massive tangles of wild grapes crush thatched roofs with their weight. Trees shatter walls with the force of their growing branches and smash through buildings completely when they fall. Microbes and fungi feast on the organic materials in the wood, resins, paint, and paper used in building interiors.[115]

The overgrown city and disintegrating settlements reveal the constructed and artificial nature of our urban and domestic environments. Maintaining a city (or a house) "is a lot of human effort:" [116] it is a constant process of cleaning, pruning, repairing, resurfacing, scrubbing, sweeping, trimming, washing, weeding. Unlike domestic animals and the tamed nature of designed parks and gardens, "wild species do not respect normative patterns of urban order established to keep wildness at bay."[117] [118] It is a constant battle to establish and re-establish borders that keep nature at a safe distance and 'in place.' "When a house, even a very old house is inhabited, it stands up. Human strength energizes the home."[119] Without this strength and effort, architecture is invaded and eventually crumbles in collapse. Nature may thus be conceived of as a transgressor of human boundaries, disregarding the assumed border that separates and distinguishes human beings from *wild*life. Doron has made a similar suggestion, terming derelict urban landscapes that have been populated and reconstructed by wild species of plants and animals as "landscape[s] of Transgression."[120] It is apparent that nature is the new, ravenous inhabitant of the spaces vacated by the fleeing human population. Abandoned, empty architectures have been filled with uninvited, untamed, feral occupants. Civilization is being reverted to a

[115] Ibid., 32.
[116] Svitlana, quoted in Ibid., 6.
[117] Edensor, *Industrial Ruins*, 47.
[118] Wildlife is "a challenge, a frontier to be tamed and managed." (Arturo Gómez-Pompa and Andrea Kaus, "Taming the Wilderness Myth," *BioScience* 42, no. 4 (1992): 272).
[119] Kostin, *Chernobyl: Confessions*, 186.
[120] Gil M. Doron, "The Dead Zone and the Architecture of Transgression," *City* 4, no. 2 (2000): 255.

Figure 16

state of wilderness, a cultivated and designed landscape is being deconstructed and decomposed by transgressive, living forces distinctly non-human.

I suggest a kind of reverse colonisation is taking place in the CEZ: space emptied of human beings has become a *terra nullius* for nature to invade, take over and control. The traditional *terra nullius* was wilderness: a virgin 'empty space' untouched and unadulterated by the hand of man (and hence ripe for the taking: "lands to be conquered, colonized, grazed or preserved"[121]). Here, land *touched* and polluted by human hands has been emptied (permanently in some places) and is being reclaimed by natural forces that are returning it to a state of 'untouched' (and 'untouchable') wilderness. The CEZ has fallen from the hands of man and is being conquered by a more resilient coloniser; wild, non-human "agencies are [now] in control of shaping the land."[122] Nature has established dominion over a landscape once under human control, 'reclaiming the streets' so to speak:[123] "natural forces [...] become master over the work of man."[124] The emptied space is thus replaced by another so-called 'empty space,' but one that reveals itself to be ecologically full.

The phenomenon of nature *filling* vacated space is by no means unique to Chernobyl and is a theme that has received attention in recent urban discourse. Others, such as Doron, Edensor and Shoard, have similarly suggested that the *presence* of non-human life invalidates the labelling of abandoned spaces as 'empty;' in the words of Edensor, "it seems particularly inapt to identify ruins as dead spaces [...] devoid of value, purpose and life." The absence of man does not necessitate the classification of space as 'dead,' 'lifeless' or 'empty.' Unlike the majority of abandoned spaces,[125] which have been and continue to be conventionally considered (by government planners and industry) as valuable only in terms of their future development (how they can be filled and made economically productive), much of the CEZ is untouchable. It is literally a *waste*land – it has been filled with radioactive nuclides and debris, acting as potent deterrents to human

[121] Gómez-Pompa and Kaus, "Taming the Wilderness Myth": 272.
[122] My emphasis. Anna Jorgensen and Marian Tylcote, "Ambivalent Landscapes: Wilderness in the Urban Interstices," *Landscape Research* 32, no. 4 (2007): 453.
[123] "Nature started taking over as soon as people left." (Svitlana, quoted in Mycio, *Wormwood Forest*, 46).
[124] Georg Simmel, "The Ruin," in Georg Simmel et al., *Essays on Sociology, Philosophy & Aesthetics* (New York: Harper Torchbooks, 1965), 259.
[125] In urban discourse, abandoned spaces are variably termed: 'dead zones;' 'derelict spaces;' 'no-man's-land;' 'ruins;' 'terrain vague;' 'urban voids;' 'wastelands'.

occupation. Whilst some evacuated areas are deemed safe to return to, there remain vast tracts of highly contaminated land that will not be 'useful' for all imaginable time. Any human activities to develop these places (such as digging or building) are likely to stir up potentially lethal radioactive dust.

The sealing off of space from human activity has in effect created an accidental nature reserve, in which wildlife is protected from the destructive presence of mankind. The region's biota have not only colonised evacuated space but are thriving and flourishing in this 'contaminated,' 'hazardous' environment. In the words of Mycio, from her book on the resilient ecology of Chernobyl,

> Contrary to the myths and imagery, Chernobyl's land had become a unique, new ecosystem. Defying the gloomiest predictions, it had come back to life as Europe's largest nature sanctuary, teeming with wildlife. Like the forests, fields, and swamps of their unexpectedly inviting habitat, the animals are all radioactive. To the astonishment of just about everyone, they are also thriving.[126]

Deposited radionuclides have entered the soil and food chain resulting in the land and its occupants becoming radioactive themselves – here, radioactivity is "a state of being."[127] Flying in the face of dire predictions, the natural world has adapted extremely well to this state. The official 2006 IAEA report on the environmental impact of the Chernobyl accident recognises,

> At present, traces of adverse radiation effects on biota can hardly be found [...] both wild plants and animals are flourishing because of the removal of the major natural stressor: humans.[128]

The ecological success in the CEZ demonstrates nature's powerful resilience; here, non-human life is capable of adapting to and flourishing alongside the wastes our species cannot tolerate. What is perceived as a *waste*land, a waste of space in human terms, should be reconsidered from the perspective of other species that inhabit our shared planet. James Lovelock, who champions nuclear power as the only viable energy solution currently at hand in the face of global climate change, has taken a radical environmental

[126] Mycio, *Wormwood Forest*, 1-2.
[127] Ibid., 30.
[128] IAEA, *Environmental Consequences*, 12.

stance on nuclear 'waste.' For him, it is too valuable a resource to be wasted – it should rather be put to positive ecological use:

> The preference of wildlife for nuclear waste suggests that the best sites for its disposal are the tropical forests and other habitats in need of a reliable guardian against their destruction.[129]

This eccentric sentiment may appear outlandish but is supported by the case of Chernobyl. Spaces rendered uninhabitable for man by nuclear 'contamination' can accommodate and facilitate other living species whose populations are under threat from human activities. Wildlife is capable of thriving in our tainted landscapes, but only once we have left *en masse*. I am reminded that humanity's mere presence *empties* the natural world: only when we are gone can it recover and fill space unhindered.

The CEZ, an hazardous, no-go area for humanity, has thus, despite radioactive contamination, become an idyll for other living beings. Certain species which have long been threatened by extinction (such as Mongolian wild horses) have successfully re-established their populations and a number of new species have found an accommodating home here.[130] "The animals are experiencing a population boom."[131] This positive ecological fullness has surprised many and lends the disaster space a facet of optimism: scientists investigating the effects of radioactive contamination on fish populations living in a cooling pond adjacent to the destroyed reactor, for example, expressed their astonishment to Olsson:

> It seems as though they are better off here than in other places we have been. As if it were some kind of fish heaven – no people fishing, less pollution. Nothing to disturb them, year after year.[132]

Life has not been obliterated here in the CEZ; the 'world's worst nuclear accident' has not rendered its spaces uninhabitable... far from it: life thrives and multiplies here. According to Kostin, "it is paradise on earth."[133]

[129] Lovelock, *The Revenge of Gaia*, 91.
[130] For an in-depth account of the new ecology in the zone, see: Mycio, *Wormwood Forest*.
[131] Nigel Williams, "Chernobyl: Life Abounds Without People," Science 269, no. 5222 (1995): 304.
[132] Researcher, quoted in Olsson, "A Redundant Landscape," 108.
[133] Igor Kostin, *Chernobyl: Confessions*, 198.

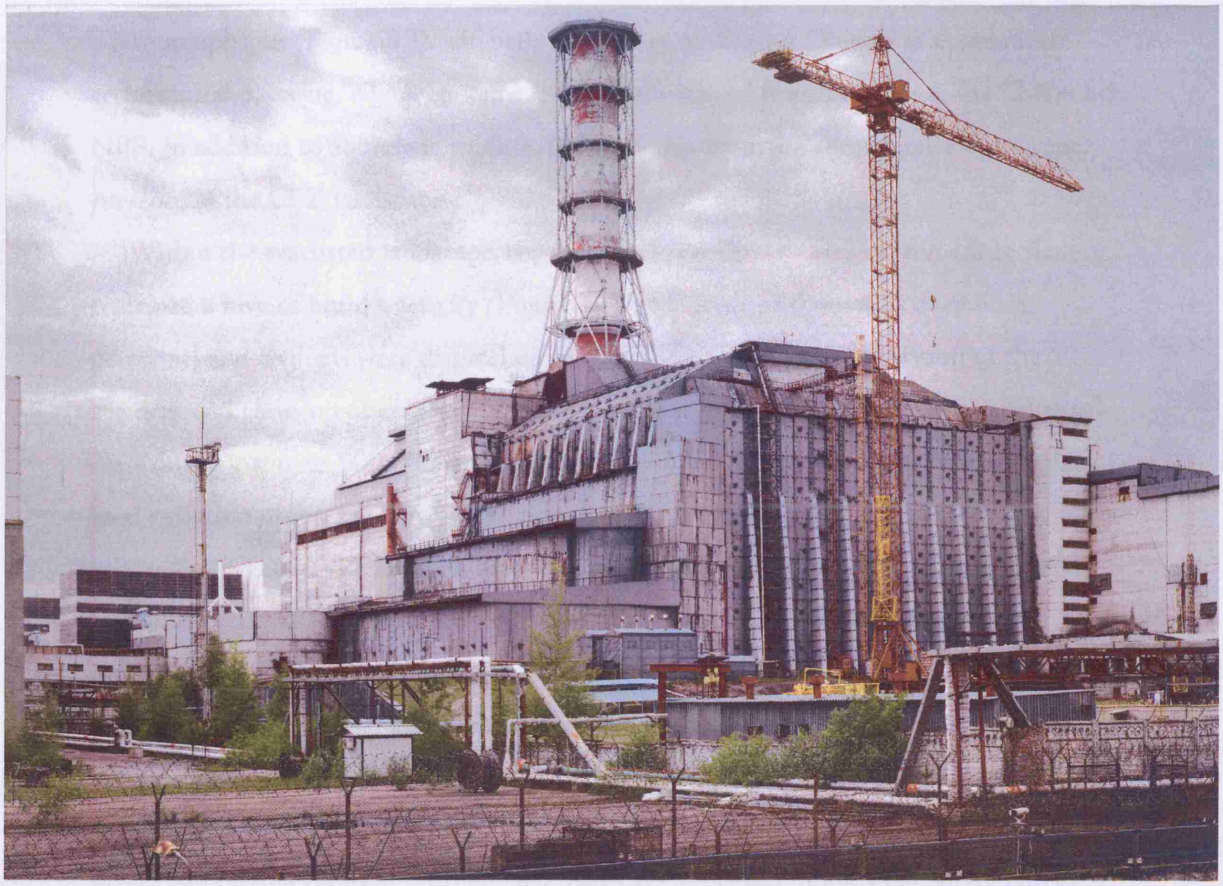

Figure 17

Sarcophagus

1. A kind of stone reputed among the Greeks to have the property of consuming the flesh of dead bodies deposited in it, and consequently used for coffins.
2. A stone coffin.
3. A flesh-eating person or animal.[134]

The Sarcophagus (Figure 17), officially referred to as 'Shelter Object,' is a mammoth architectural covering, which contains (houses) the ruined fourth reactor at the Chernobyl NPP. In addition to abundant wildlife, I suggest this structure constitutes a significant *presence* in the CEZ landscape.

Within the evacuated landscape, the site of nuclear disaster and its immediate vicinity remained a hive of human activity (Figure 18). Hundreds of thousands of military personnel and civilians were dispatched to the CEZ to assist with mitigation of the accident and clean-up operations: 300,000 people were sent in 1986-87, the number of 'liquidators' rising to 600,000 in later years.[135] While robots broke down due to high-level radiation exposure, orders were sustained to continue sending men ('biologic robots') to liquidate the area (Figure 19 shows 'liquidators' in protective clothing being transported to the NPP). Following the accident, the plant suspended its energy production, but after several months the undamaged reactors in blocks 1, 2 and 3 were put back into operation.[136] Under Soviet rule, the Chernobyl NPP was considered too valuable an energy producer to be decommissioned. All reactors were permanently suspended in 2000. However, even today around 4,000 people continue to work at the plant (conducting research, maintenance, clean-up, radiation monitoring, safety checks, etc.).[137]

[134] "Sarcophagus," Oxford English Dictionary, http://www.oed.com.
[135] Balonov, "The Chernobyl Forum": 7.
[136] Reactor block 1 was suspended in October 1986, block 2 in November 1986 and block 3 in December 1987. (Kostin, *Chernobyl: Confessions*, 34).
[137] This subsistence of human activity shows no signs of diminishing, as suggested by the IAEA's 2006 plans for the CEZ's future: "In summary, the future of CEZ for the next hundred years and more is envisaged to be associated with the following activities:
1. Construction and operation of the NSC [new safe confinement] and relevant engineering infrastructure.
2. De-fuelling, decommissioning and dismantling of units 1, 2 and 3 of Chernobyl power plant and shelter.

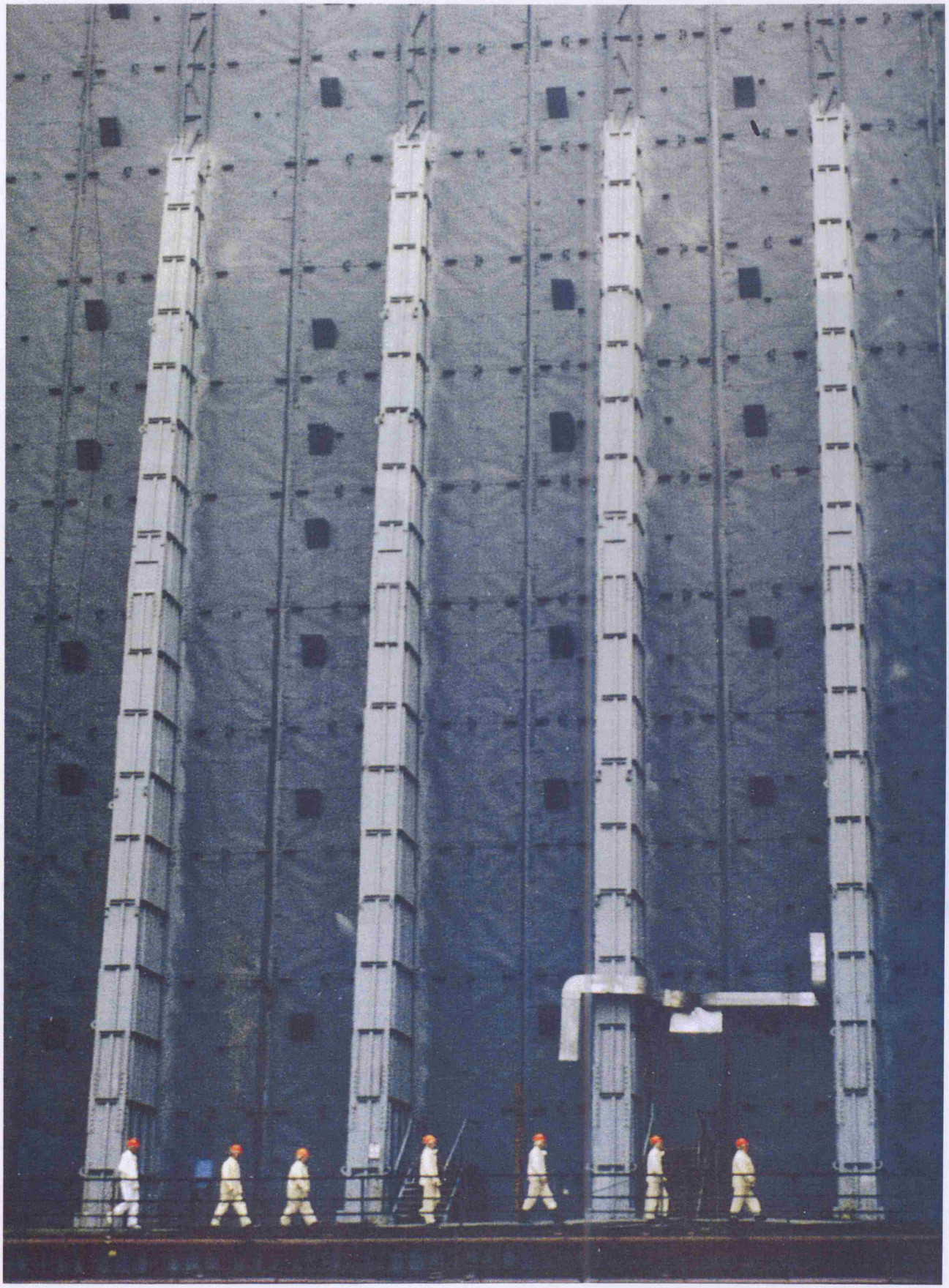

Figure 18

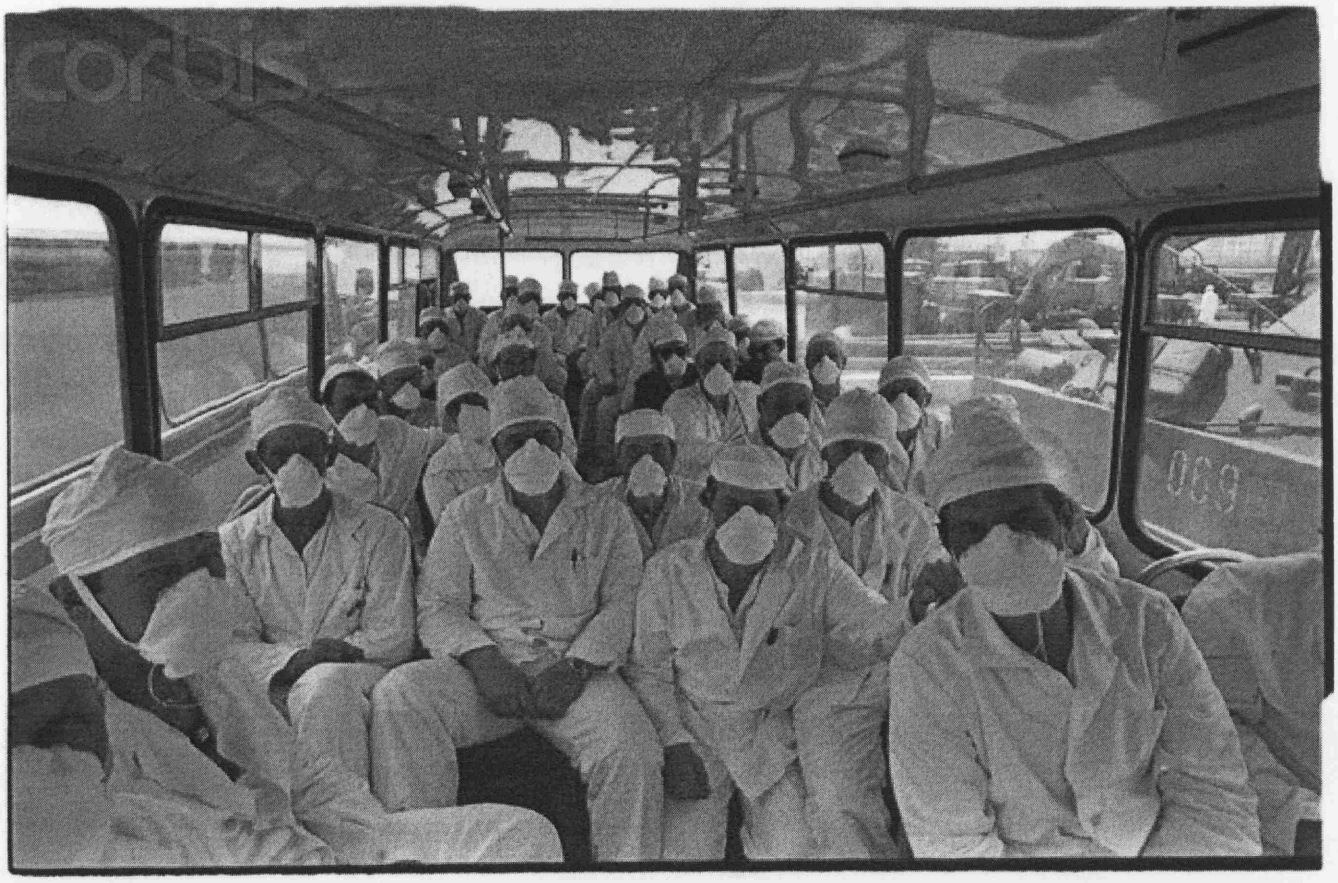

Figure 19

It is hard to fathom that people work *inside* the Sarcophagus, coming into close contact with lethal radiation doses. A documentary programme made for BBC television[138] records the activities of a team of scientists working at the ruined NPP site and inside the Shelter since the accident. If "conditions inside of unit 4 are hazardous and present significant risks to workers"[139] then why do human activities continue here? How is it safe to work in such a radioactive environment?

The heart of the CEZ thus continues to pulsate with human occupation. This central pressure point, the originating site of the Chernobyl disaster, is populated and 'alive.' In contradistinction to the abandoned, empty settlements that circle it in every direction, this space may be regarded as 'full.' However, the presence of people is not the only 'fullness' of interest here. I suggest the architecture of the Sarcophagus itself is significant in terms of its conspicuous *presence* in the landscape, in both physical and symbolic terms.

The Sarcophagus is a huge structure, an architectural 'Shelter' that acts as a covering and container for the destroyed unit 4 at the Chernobyl NPP (Figures 17 and 18). It was hastily constructed in the space of 6 months (May - November 1986) using remote control equipment, helicopters and, where necessary, work was also carried out by hand.[140] It was a colossal feat of structural engineering, carried out under pressurised and formidable circumstances. "Walls grew in 12-meter steps to a height of 60 meters. 300,000 cubic meters of concrete and 6,000 tons of metal were used to build it."[141] The shelter's function continues to be the "environmental containment of the damaged reactor, reduction of radiation levels on the site and prevention of further release of radionuclides."[142] Although it has largely succeeded, the Sarcophagus is deemed "imperfect" and its structural quality and stability have been degrading over time, despite

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3. Construction of facilities for the processing and management of radioactive waste, in particular a deep geological repository for high activity and long lived radioactive material.
4. Development of nature reserves in the area that remains closed to habitation.
5. Maintenance of environmental monitoring and research activities." (IAEA, *Environmental Consequences*, 161).

[138] Inside Chernobyl Sarcophagus, Horizon, first broadcast April 22, 1991 by BBC2, produced by Edward Briffa.

[139] IAEA, *Environmental Consequences*, 19.

[140] Ibid., 13.

[141] Vladimir M. Chernousenko, *Chernobyl: Insight from the Inside* (Berlin, New York and Heidelberg: Springer-Verlag, 1991), 130.

[142] IAEA, *Environmental Consequences*, 13.

numerous structural reinforcements.[143] The architecture is in a highly unpredictable state: for over a decade scientists have been forecasting the imminent collapse of its top structures (supported in part by underlying ruins and debris), which would result in a vast release of potentially hazardous radioactive dust into the atmosphere. The Sarcophagus contains "about 200 tonnes of irradiated and fresh nuclear fuel,"[144] "more than 95% of the fuel mass at the moment of the accident"[145] – however, these figures are mere estimates – it is not adequately known exactly what, or how much of it, still lingers within the Sarcophagus.

This image of an insecure shelter that may release its vast, volatile contents at any moment is far from reassuring. The fear of potential radioactive release and contamination is further compounded by the fact that the Sarcophagus is not a hermetically sealed structure: its walls and roof are punctured with holes, leaks and vents. "The shelter has approximately 1000m^2 of openings in its surface"[146] and it is through these openings that uncontrolled "radioactive aerosol releases"[147] continue to enter the atmosphere.

through a fissure in steel
those atoms keep streaming out

(Mario Petruci)[148]

Radiation, after Chernobyl, became something dangerous, something feared and fled from – at the plant, 'freed' radioactivity had to be constrained and kept at bay. The radio*active* wastes contained within the Sarcophagus may thus be regarded as demonic – waiting for the chance to escape confinement and wreak havoc. The Shelter Object came to be a "den for a nuclear beast,"[149] as the Soviet press termed it, functioning to house,

[143] "Shelter was erected in extremely short period of time under conditions of severe radiation exposure of personnel. As a result, measures taken to save time and reduce dose during the construction led to imperfection in the newly constructed shelter as well as to a lack of comprehensive data on the stability of the damaged unit 4 structures. In addition to uncertainties on stability at the time of its construction, structural elements of the shelter have degraded as a result of moisture induced corrosion during the two decades that have passed since the shelter was erected." Ibid., 13.
[144] International Atomic Energy Agency, *One Decade After Chernobyl: Summing up the Consequences of the Accident: International Conference April 1996* (Vienna: IAEA, 1996), n.p.
[145] IAEA, *Environmental Consequences*, 141.
[146] Ibid., 142.
[147] Ibid., 142.
[148] Mario Petruci, *Half Life: Poems for Chernobyl* (Coventry: The Heaventree Press, 2004), 21.
[149] Kostin, *Chernobyl: Confessions*, 92.

tame and keep quiet the destructive monster within its walls. The Sarcophagus was lauded in the Soviet Union as a triumphal conclusion, a symbolic end (a 'burial') to a threat that was almost 'alive' in its unpredictable, ferocious nature. "For the first time, the word 'coffin' began to intimate a kind of hope!"[150]

This vast coffin signified the beast's resting place. But can walls built by man keep *it* in? Will it destroy, transgress, the boundaries we have attempted to construct around it? A new safe confinement (NSC) structure is currently being planned by an international consortium:[151] a gigantic, arc-shaped steel structure (190 metres wide and 200 long[152]) is intended to cover the existing Sarcophagus as a longer-term (although by no means permanent) solution. Critically, radioactive waste remains *un*manageable: according to the IAEA, "to date no broadly accepted strategy for radioactive waste management at the Chernobyl power plant site and CEZ has been developed."[153]

The Sarcophagus, the covering architecture itself, has in popular and colloquial discourse (like radiation) been attributed beastly, animate qualities. I have found in my reading that it is frequently referred to as 'monstrous,' as the "hulk."[154] A 'sarcophagus' is not only a coffin, but also "a flesh-eating person or animal."[155]

> 'Come and see our monster.' She [information officer, Chernobyl NPP] introduced the worn and rusty body like a circus director. Her thin hand before the mouth of the animal. Nearby, the danger and the dark.[156]

The physicality and aesthetic qualities of this structure (as represented in photographic and filmic depictions) further validate the Sarcophagus as 'monstrous.' The fourth reactor was originally housed in a white, rectangular, industrial block of purist straight lines, modernist in style (Figure 20). This architecture suggested Soviet progress and optimism

[150] Mohamed Makhzangi, *Memories of a Meltdown: An Egyptian between Moscow and Chernobyl* (Cairo and New York: The American University in Cairo Press, 2006), 19.
[151] For an overview on the design concept of the NSC, see: Valery Kulishenko, Charles Hogg, Eric Schmieman, Matthew Wrona, Phillippe Convert, Yuiy Nemchynov, Victor Shenderovich, Vladimir Shcherbin, Pascal Belicard and Michael Durst, "Conceptual Design of the Chornobyl New Safe Confinement – an Overview," *Canadian Nuclear Society Bulletin* 25, no. 2 (2004): 9-16.
[152] "Chernobyl to be covered in steel," BBC News, September 18, 2007, http://news.bbc.co.uk/2/hi/europe/6999140.stm.
[153] IAEA, *Environmental Consequences*, 14.
[154] Richard Stone, "Living in the Shadow of Chernobyl," *Science* 292, no. 5516 (2001): 422.
[155] "Sarcophagus," Oxford English Dictionary.
[156] Olsson, "A Redundant Landscape," 110.

Figure 20

and spoke of a bright future powered by "idyllic"[157] nuclear energy. "At school and university we'd been taught that this was a magical factory that made 'energy out of nothing.'"[158] The ruined reactor is now shrouded in a vast covering of dark grey steel and concrete, its outline assuming a jagged and rugged silhouette: on one side (the cascade wall) are gigantic, uneven stepped terraces and on the other (buttress wall) are sky-rocketing flanking buttresses; its surface is pocked by blemishes and blackened voids (Figure 17). The Sarcophagus appears as a hulking, cumbersome, threatening physical presence: it is heavy and dark, overshadowing and dwarfing human forms (Figure 18). There is something frightful and menacing about this architecture: it is a foreboding presence, a technological creation (creature?) reminiscent of nightmare imagery or science fiction. This monster, the Sarcophagus, is frequently depicted as physically dominating the Chernobyl landscape. Photographers (professional and amateur) have favoured a certain shot (Figure 21): the Sarcophagus looms on the horizon, overshadowing the empty city, Pripyat, which rests in the foreground. The Sarcophagus is thereby represented as powerfully *present* in the emptied landscape, as something that dominates, towers over and controls the space it inhabits.[159]

But which is the monster, the building or its contents? It seems as though this physical presence has become a concretisation, a symbol, for the intangible danger it houses. A *concrete* form has been constructed around a threat that we cannot perceive: could it be that fears (and memories) of radiation and nuclear catastrophe have been transposed onto the building itself? I suggest that the architectural structure has come to signify and symbolize the imperceptible (phenomenally absent) danger it contains and constrains. According to Petryna, "'Sarcophagus' became commonly used by a Soviet population to identify the phenomenon of Chernobyl."[160] The contents and its container, the architecture and its history, are symbolically inseparable, as further suggested in the following lines:

> Nuke goblin drew a deadly circle that made us shiver,
> And in a flash his concrete eyelids dropped.

[157] Zoya Danilovna Bruk, Environmental Inspector, quoted in Alexievich, ed., *Voices from Chernobyl*, 168.
[158] Ibid.
[159] A nuclear-age acropolis?
[160] Petryna, "Sarcophagus": 198.

Figure 21

(Lina Kostenko)[161]

I suggest that the Shelter Object is a potent architectural symbol for everything that went wrong here. Could it be conceived of as a kind of monument to Chernobyl? The Sarcophagus is undoubtedly *monumental* in scale and apparently acts as a reminder of the 'worst nuclear accident.' It is a stony presence bearing witness and standing in testament to past events, simultaneously warning us of immanent future threats. In the words of Danylo Kulyniak,

> If humans as a species were to disappear from the planet today, some fifty years later we would be called to mind perhaps only for the monuments of civilization patterned on the 'Shelter' rising above the Pripyat River. It's something to be always remembered.[162]

[161] Kostenko, quoted in *Chernobyl Concerns Everyone*, 64.
[162] Danylo Kulyniak, quoted in Ibid., 89.

Concluding Remarks

In the face of rising fuel prices and global climate change, nuclear power is becoming a more desirable energy option.[163] *Although many lessons regarding nuclear safety have been learnt from Chernobyl, this history persists as an uncomfortable memory and reality. Whilst less than 50 deaths have been directly attributed to radiation exposure from the accident, it is widely predicted that many deaths are yet to come: according to the WHO, 4,000 people are forecasted to eventually die as a direct result*[164] *(yet this figure continues to be contested).*[165] *The impacts of Chernobyl are without geographical or temporal boundaries, "without a foreseeable end."*[166] *In the words of Ukrainian children born shortly after the accident,*

> *Chernobyl [. . .] affects the whole planet*
>
> *Chernobyl is forever.*[167]

Summary

Following the 1986 explosion and resulting fire at the Chernobyl NPP, a hazardous danger (radiation) that could not be sensorially perceived filled space that was apparently 'empty.' If radiation is phenomenally absent it poses a problem for human knowledge, existing at the edge of what we can intellectually comprehend. I suggested that the radiation maps after Chernobyl offer a tangible, comprehensible formalisation of the ungraspable, spatializing and attempting to confine (physically and conceptually) intangible radiation. Off the page and into real space, these lines and colours are more than abstract representations: guided by maps of contamination levels, vast tracts of land were deemed unsuitable for human habitation and activity and were accordingly

[163] For lessons learnt from Chernobyl in the nuclear industry, see: "Learning from Chernobyl," *Nature* 440, no. 7087 (2006): 969-970.
[164] WHO, "Chernobyl: the True Scale of the Accident."
[165] For an overview of the controversies surrounding Chernobyl death toll figures, see: Mark Peplow, "Special Report: Counting the dead," *Nature* 440, no. 7087 (2006): 982-983.
[166] Barnett, "Psychosocial effects": 49.
[167] Local children born after the Chernobyl accident, quoted in Ibid., 52.

evacuated. This mass exodus of human life left an emptied no-man's-and, a place from which human life is banished. Chernobyl's emptied spaces have become dramatized, mythologized and aestheticised through direct and mediated 'tourism.' I suggested that these experiences have emphasized and highlighted the absence of people, catering for outside spectators who demand the construction, the myth of a dystopic empty space. Representations of Pripyat, the 'Ghost City,' epitomize a post-nuclear disaster *waste*land, a place once full of life, now devastatingly empty. However, this space is far from the 'dead zone' it is frequently presented as: the evacuated lands have become buoyant with other forms of non-human life and activity. Nature is reclaiming the territory, returning the area to an idyllic wilderness, an untouchable *terra nullius*. Without man, other species can re-establish their populations and flourish: the space is ecologically full. Another significant, 'living' presence in the landscape is the Sarcophagus, the Shelter Object that houses the ruined fourth reactor. It has always been and continues to be 'alive' with industrious human activity; unlike the abandoned settlements that surround it this architecture is not 'dead.' In addition, the Sarcophagus and its contents have been attributed beastly qualities, I have suggested that the Shelter has come to signify the monstrous radioactive danger it houses and is represented as dominating the landscape as a fearful monument to past tragedy and potential future threat.

An Ambiguous Wasteland

My research may be situated within the field of architectural history as an investigation of 'wasteland' space, a topic that has received growing attention in recent years. The CEZ is an extreme case in point: the land, being radioactively contaminated, is literally *waste,* and is designated as a no-man's-land by rule of law. Yet it is an indeterminate space, which resists established categorisation: the villages of the CEZ are officially 'abandoned' yet some have been reoccupied by re-settlers... Chernobyl town is 'derelict' yet functions to house the CEZ's administration... the NPP is a defunct 'industrial ruin' yet its operators work on the site – the 'ruin' is being recovered and reinforced. Uniquely, the spaces of Chernobyl are marked by past disaster and persist as (potentially) disastrous: areas of high contamination continue to be perilously dangerous and the Sarcophagus is in an

unpredictable state of imminent collapse. Unlike the "treasure trove"[168] industrial ruins described by Edensor (which have positive potential as exciting playgrounds and shelters for homeless persons) these ruins are deadly. Curiously, tourists are drawn here – but while, according to Edensor, "exploring ruins is a kind of anti-tourism,"[169] the CEZ is a space of strict control and surveillance, where guided, package tourism is officially endorsed. The CEZ is thus a unique, indeterminate wasteland landscape that is ambiguously situated between use and disuse, between occupation and dereliction, between tourist destination and no-man's-land.

General Ramifications & Further Questions

Whilst Chernobyl, as a history and as a place, is unique, there are general ramifications that may be drawn from my investigation of it. My research report offers not only an analysis of specific, historically situated spaces and representations but raises issues and questions of wider relevance to the field of architectural history, as well as opening up new avenues for further investigation:

• By utilising a dialectic of emptiness and fullness, of absence and presence, I have explored different notions of spatiality in relation to a specific time and place. This theoretical approach provided a conceptual opening through which I could develop a rich and layered perspective on the chosen subject matter. The result was not so much to expose an 'empty space' as 'full' (or vice-versa) but to bring to light how we think and talk about spaces (in academic and everyday discourse) and demonstrate the resonances and relativity of such notions. This dialectic of opposition is here demonstrated as a novel framework for thinking about and understanding spaces in the study of architectural history. It would be useful to apply this to other spaces conventionally regarded as 'empty' (such as urban wastelands, city squares/plazas, motorways and 'generic' spaces of late capitalist consumption) in order to uncover/construct multiple, layered understandings of them. What is missing, what is absent, that makes these places 'empty'? At the same time, what is present, what *is* there?

[168] Edensor, *Industrial Ruins*, 25.
[169] Edensor, *Industrial Ruins*, 95.

• By discussing radiation as an intangible, immaterial aspect of spatiality, I have raised the question of the unseen in architectural history. Vision is our most pervasive sense and architectural discourse has conventionally focussed (and continues to do so) on those aspects of the built environment that can be accessed through sight and described in visual terms.[170] Here, I have brought to light a phenomenon (radiation) that fills space yet resists sensorial perception. Is there more to our experience of spaces than can be phenomenally registered? What are the invisible, intangible, immaterial aspects of architecture? What are the unseen (unknown) elements of the spaces we occupy?

• My exploration of space as a habitat for nature as well as human beings challenges a traditional view of architecture. Architecture and urban forms are predominantly conceived as spaces for human beings and their activities. It is only when we abandon our 'human' environments that wildlife clearly re-establishes its presence, reminding us that human beings are just one (fragile) occupant of the spaces we ultimately share and co-construct.[171]

• My method of relying on representations of Chernobyl's spaces demonstrates a complex relationship between direct phenomenological and mediated experiences. There exists a "wide prejudice in architectural criticism against the use of" mediated representations as substitutes "for the direct perception of buildings"[172] with prominent figures[173] insisting on the necessity of first-hand, embodied engagement with spaces in order to gain an understanding of them. Whilst I agree with James Ackerman's assertion that "all media,

[170] According to Juhani Pallasmaa, "Architectural theory and criticism have been almost exclusively engaged with the mechanisms of vision and visual expression." (Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses* (Chichester: John Wiley, 2005), 9).
[171] Others in the field have also highlighted the importance of non-human agents in co-constructing the built environment. See, for example, the following publications: Owain Jones and Paul Cloke, *Tree Cultures: The Place of Trees and Trees in their Place* (Oxford and New York: Berg, 2002); Jonathan Murdoch, "Co-constructing the countryside: hybrid networks and the extensive self," in Paul Cloke, ed., *Country Visions* (Essex: Pearson Education, 2003) 263-282; Sarah Whatmore and Steve Hinchliffe, "Living cities: Making space for urban nature," *Soundings: A Journal of Politics and Culture* 22 (winter 2002/2003): 37-50.
[172] Juan Pablo Bonta, *Architecture and its Interpretation* (London: Lund Humphries, 1979), 146.
[173] See, for example, the writing of Steen Eiler Rasmussen and Pallasmaa. "It is not enough to *see* architecture; you must experience it." (Steen Eiler Rasmussen, *Experiencing Architecture* (Cambridge: MIT Press, 1964), 33).

all representations are essentially [...] limited, partial and biased,"[174] my examination of Chernobyl's mediated spaces has revealed layers of (constructed) meaning around the real place; the representations hold a power of their own worthy of study. The recorded accounts, imagery and sounds of Chernobyl's spaces allow the 'virtual visitor' to build up a detached 'experience' of a place that most of us will never have the opportunity to visit. I have further demonstrated that these mediated artefacts offer phenomenological, sensory experiences (the radiation maps, for example, render radiation *visible*), experiences which cannot be equated with direct engagement but which are of interest in and of themselves. Photographs of Pripyat, for example, are emotionally affective and viscerally engaging: we can almost smell the decomposing debris and hear the silence of abandonment. Architecture and *real* space are thus not solely capable of producing phenomenological experience and representations are not merely empty simulacra of an authentic original. Indeed, representations have been shown to add something to the place they represent: here, they function to construct a meaning, a myth, for Chernobyl (such as the photographer's preference for a camera angle that presents the Sarcophagus as physically dominating the evacuated landscape).[175] Through the written word I have added to this layering and I acknowledge that the writing of history is another representation, another construction.[176]

• An investigation of different types of disaster or crisis space would be an interesting extension to this project. One could compare the CEZ with other places (architectures, villages, towns and cities) that have been drastically altered or changed as a result of natural devastation or manmade tensions: places that have been bombed, contaminated, destroyed, divided, evacuated, flooded... cities such as Baghdad, Jerusalem and New Orleans readily come to mind. Such disaster or crisis spaces, like Chernobyl and the CEZ, have been widely represented as potent reminders of past events and continuing histories.

[174] James S. Ackerman, "On the Origins of Architectural Photography," in *This is Not Architecture: Media Constructions*, ed. Kester Rattenbury (London: Routledge, 2002), 55.
[175] Although the photograph as a document apparently represents an irrefutable truth, Susan Sontag reminds us that it is simultaneously a highly subjective "interpretation of the world." Susan Sontag, *On Photography* (Harmondsworth: Penguin, 1979), 7.
[176] In the words of Beatriz Colomina, writing about photographs of architecture: "representations [...] literally construct their object." Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge and London: MIT Press, 1996), 271.

How are such extreme spaces perceived and experienced? How are they represented and communicated to outsiders? How do experiences and representations of spaces and architectures inform and contribute to our understanding of global events and histories?

Conclusion

This report is an historical, spatial exploration of Chernobyl undertaken by examining and interpreting multi-media representations of the CEZ. My sources are necessarily mediated ones and hence my discussions invoke as much about the *real* space as the representations themselves, if not more about the latter. My research began with an interest in the dialectic between spatial absence and presence, between the empty and full space, an opposition that I projected onto the spaces of Chernobyl. I have explored the emptiness of human life and the ecological fullness of wild*life*, the apparent absence of radiation and the monstrous presence of the architecture that now houses the (equally monstrous) radioactive debris. I have hereby constructed another layer of meaning around this place: a story of emptiness and fullness... this is my myth of Chernobyl.

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