

A Greener Way to Go: Climate Adaptation Imperatives for Western Deathcare

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Abstract

Death is a universal human experience, yet the ecological impact of the care and disposition of dead bodies is rarely considered, due in part to cultural taboos surrounding the physical reality of death and decomposition. If negative environmental consequences are to be limited, deathcare will need to adapt. Utilizing interviews with funeral directors from the United Kingdom, the United States and Canada, this research project traces how modern burial and cremation came to dominate Western deathcare, including what types of cultural narratives they reflect. The ecological consequences of these practices are examined and alternative options, both the novel and the reclaimed, are explored. Interviewees shared perspectives on many topics, including the potential emotional insufficiency of standard funeral services, the risk for greenwashing in emerging alternatives and the likelihood that cremation will continue to rise in popularity. Finally, factors of change and larger implications of moving towards more sustainable deathcare options are considered. Practitioners spoke of their hopes and expectations about what might change in deathcare in the next decade. Factors of change discussed include: the COVID-19 pandemic, shifting demography and the entrance of more women to the deathcare industry. Additionally, this research explores how novel and reclaimed ways of thinking about and caring for the dead may inspire a more ecologically balanced way of living.

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Summary

From hospital to funeral home to casket, bound for grave or furnace, the current Western death journey has little variation, yet has changed tremendously in the past few centuries. As with much of modern life, modern death puts new and unsustainable pressure on the planet. The ecological impact of modern deathcare practices, specifically modern burial and cremation, is substantial, yet rarely discussed.

For residents of the United Kingdom, the United States and Canada, death has never been more sequestered than it is now; advances in medicine and the mortuary profession mean that most people will never have direct contact with the corporal facts of death. Western detachment from death mirrors attitudes held about the natural world, implying a similar sense of dualism between man and nature, the living and the dead. What might a non-dualistic way of dying mean for these cultures?

To address this question, the current project used semi-structured interviews with funeral directors, an underrepresented but uniquely positioned insider group. Specifically, this project set out to investigate three questions regarding deathcare in the UK, US, and Canada:

1. How did the modern practices of burial and cremation come to dominate Western deathcare, and what types of cultural values do they reflect?
2. What are the ecological consequences of such practices?
3. What adaptations might enable more ecologically sustainable deathcare in the future?

The novel exploration of deathcare sustainability through the perspective of professionals who work with death everyday provides valuable nuance, narrative and complexity to the topic. Results show how Western values such as convenience and denial of death underlie much of deathcare in its modern form. Burial has become ever more elaborate and expensive. With lavish caskets and invasive preparatory techniques, it now bears little similarity to how burial was performed throughout human history and continues to be performed by other cultures and people groups. Cremation rates have risen exponentially in the past 80 years and are expected to continue growing in the next decade, in part due to financial and land constraints and promotion of cremation as the simple, easy, and “green” option.

The ecological impacts of Western burial and cremation are diverse. Caskets are resource-intensive to manufacture and transport, and commonly contain synthetic glues and varnishes,

plastics, and heavy metals. Depending on whether they are buried or burned, these elements either leach into soil or end up as emissions. Human bodies also increasingly contain foreign elements, including mercury dental fillings, silicone implants, pacemakers, and artificial joints. Burial involves accessories such as ceremonial flowers and stone grave markers. These items are often transported great distances along global supply chains and come with their own ecological costs. Furthermore, if burial plots are sold in perpetuity, as in the countries of this research, there are land use costs to consider, in addition to the water, pesticide and mechanical maintenance used to keep lawn-style cemeteries in pristine condition. Cremation, though sometimes less resource intensive, requires combustion energy and produces greenhouse gases and other harmful emissions.

Ultimately, as anthropogenic climate change intensifies, a transition away from carbon-based energy must be realized for humans to survive. Additionally, the pressure on land and resources is expected to escalate. Deathcare will need to adapt if it is to decrease its contributions to the climate crisis. Alternatives exist that may be more sustainable, such as natural burial, which mandates a biodegradable casket, no embalming and minimal cemetery maintenance, harkening back to burial practices of the past. Other possibilities emerging on the market include alkaline hydrolysis (dissolving the body in a water-based solution) and natural organic reduction (rapid composting the body). However, alternative modes of disposition still require resources and energy, and the manipulative marketing technique known as ‘greenwashing’ is of particular concern amongst industry professionals. The emotional insufficiency of standard-practice funeral services was mentioned by many interviewees, and a countermovement towards greater transparency, greater involvement of the bereaved, and greater recognition of the body’s place in the carbon-cycle is gaining traction. Substantial change to deathcare practices will necessitate multiple contributing factors, such as the legal expansion of disposition options, consumer and industry education, and financial feasibility of alternatives.

Although care for and disposition of the deceased are pivotal components of moving through grief, the best way to do so while also limiting ecological consequences is increasingly open to question. Moreover, a more connected and aware approach to death may inspire a greater degree of ecological mindfulness while still alive. The ongoing COVID-19 pandemic forced deathcare to pivot towards different types of practices and ceremonies. Though long-term effects are not yet known, many interviewees expected certain COVID-instigated changes to persist, such as live-streaming technology and the shift to more intimate, less formal bereavement rituals. Furthermore, the aging Baby Boomer generation and the entrance of more women into the deathcare profession are two forces of change that arose in the primary data and background literature. The next decade may be a uniquely potent time of transformation for the way death is treated in the Western world.

Abbreviations

CO ₂	Carbon dioxide
EEA	European Environmental Agency
IPCC	Intergovernmental Panel on Climate Change
NFDA	National Funeral Directors Association
NOR	Natural Organic Reduction
SCI	Service Corporation International
UK	United Kingdom
UKEA	United Kingdom Environmental Agency
US	United States
USD	United States dollar
WHO	World Health Organization

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1. Introduction

Over the past 150 years, Western society has become increasingly disconnected from death (Harris, 2007; Kelly, 2015; Sanders, 2020). Most people in Europe and North America now die in hospitals or long-term care facilities and are transported by mortuary professionals to a funeral home or crematorium (Kelly, 2017). Prepared by strangers, the body is passed back to the bereaved, in casket or ash, only once it has been processed and sterilized. The physical, intimate link with death, sustained throughout history, has been broken. For most, the course of death is now ever more medicalized and commercialized (Krupar, 2018).

As with so many spheres of the consumer lifestyle, deathcare¹ is polluting and increasingly unsustainable. Embalming fluid is leaching into groundwater and cemeteries are running out of space; crematoriums release carbon and toxins into the sky and human incineration demands considerable amounts of energy, typically from fossil fuel (Kalia, 2019; Haneman, 2020). Aside from energy, modern deathcare also consumes other vital resources, including wood, metal, cement, chemicals, and land (Alfus, 2020). With the global population projected to peak between 9 to 11 billion by 2100, there is increasing urgency to find less resource-intensive ways to attend to the dead (Adam, 2021). The climate crisis further exacerbates this need to adapt. The global mandate to transition away from fossil-fuel consumption and carbon releasing activities necessitates either radically redesigning current deathcare procedures or embracing new technology (Lee et al., 2022; Robinson, 2021). As the latest Intergovernmental Panel on Climate Change report urges, in order “to successfully secure our own future and the future of the coming generations, climate risks must be factored into *each decision*”, including one’s final decision (IPCC, 2022, p.2, emphasis added).

Aside from the ecological limits on deathcare as currently performed in the West, there is also a rising cry to reclaim the connection to death and the natural cycles that bodies have been part of for so much of human history (Kelly, 2012; Stewart, 2017). The narrative that death is disconnected from life, set apart and sterilized, as if decomposition was not a vital component of growth, promotes a false dualism (Kelly, 2015; Selam, 2006). Indeed, bodies preserved with formaldehyde, laid inside air-tight metal caskets, embedded in cement-lined graves are an epitomic symbol of man’s grasping at immortality, raging uselessly against the inevitable forces of decay. What if the West chose to reject the symbolic line that dualism draws between body and earth, man and nature? Ecofeminism and queer ecology are two branches of critical theory that promote the interconnectedness of humans and their environment, thereby seeking to advance a

¹ The spectrum of care involving the preparation and disposition of a body. Disposition is a term used by the funeral industry to indicate the “means of laying human remains to rest; methods of disposition may include earth burial...cremation, etc.”(NYS Funeral Directors Association, 2022, para. 34).

more just, more balanced relationship with each other and the non-human elements of the world (MacCormack et al., 2021; Thompson, 2006). Applying such mindsets to Western deathcare practices has radical implications for discovering new meaning in life as well as death.

Consumer interest in green deathcare is growing, but slowly, and the funeral industry is notoriously conservative and slow to change (Haneman, 2020; Kelly, 2015). However, tectonic shifts in deathcare practices have happened in the past. Embalming the dead went from a nearly unthinkable invasive process to the normative mortuary procedure in the US over the course of one generation (Harris, 2007). Likewise, cremation surged in popularity in the UK, increasing from fewer than 4% of dispositions in 1940, to over 80% in 2020 (The Cremation Society, 2021). There is growing scholarship to indicate that the industry may again be on the precipice of such a transformation (Haneman, 2020; Robinson, 2021). The aging Baby Boomer generation, the first to embrace ecological messaging on a massive scale, are increasingly concerned about the impact of their final act on earth (Canning & Szmigin, 2010; Stock & Dennis, 2021). Furthermore, the ongoing COVID-19 pandemic has made mortality visible in new ways, fostering a uniquely potent time for transformative thinking and industry disruption (Lee et al., 2022; Sanders, 2020).

1.1 Motivation

Despite a consensus of accumulating harm, academic reports of how deathcare practices impact the environment and contribute to the climate crisis are still sparse (Keijzer & Kok, 2011; Lee et al., 2022). Though there are small markers of cultural change, such as the emerging death-positivity movement, social taboos still make death a niche and neglected topic of study (Doughty, 2018; MacMurray & Futrell, 2021).

This research project aims to trace the history, supporting cultural narratives and ecological consequences of the most prominent forms of modern Western deathcare: burial and cremation. Alternative ways of disposing of the dead, both the reclaimed, such as ‘natural burial’, as well as the innovative, such as alkaline hydrolysis (dissolving in liquid) and cryomation (freeze-drying), will be introduced and explored. To gain a more multifaceted perspective on the present state of Western deathcare and the potential for change, interviews were conducted with deathcare professionals, including some who specifically promote green alternatives. Engaging with industry perspectives allowed for a clearer understanding of the challenges and opportunities for deathcare adaptation.

Recent scholarship has examined deathcare adaptation from an individual perspective (e.g., aged environmentalists’ thoughts on green deathcare [Stock & Dennis, 2021]), a market consumer perspective (e.g., how tax credits may incentivize cleaner choices [Haneman, 2020]), and

investigated readiness for specific adaptations (e.g., the legal and cultural feasibility of alkaline hydrolysis in the UK [Robinson, 2021]). However, industry voices are severely lacking from academic research. Sometimes termed ‘last responders’, deathcare professionals have a unique vantage point on the practical realities of death and the swaying tide of client priorities. The present research contributes to filling this gap, so that the potential shift towards climate-smart deathcare may be more carefully informed.

Specifically, this project aims to investigate:

1. How did the modern practices of burial and cremation come to dominate Western deathcare, and what types of cultural values do they reflect?
2. What are the ecological consequences of such practices?
3. What adaptations might enable more ecologically sustainable deathcare in the future?

2. Research Methodology

The process, actions and outcomes of the research methodology used in this project are detailed and justified in the sections below. Given the scarcity of research on deathcare sustainability, especially research inclusive of practitioner perspectives, the methodology for this project was explicitly exploratory and inductive.

2.1 Data Collection

The identified gap in industry voices was addressed using semi-structured interviews (Creswell, 2013) with practicing funeral directors from the UK ($n=3$), the US ($n=4$), and Canada ($n=2$), both those engaged in mostly standard methods ($n=3$) and those engaged specifically in green alternatives ($n=6$). Interviews were chosen as a method of data collection to add nuance and narrative insight and to gain a sense of the current societal ‘pulse’ from individuals who regularly interact with death. Semi-structured interviews allowed for reflexivity and the opportunity for clarification (Brinkmann & Kvale, 2018). Interview questions were designed to probe professionals’ past, present and projected future experiences in the deathcare industry. Of interest were their perspectives on the values that underlie client priorities, the environmental impact of conventional deathcare and emerging alternatives, in addition to their thoughts on possible changes within the next decade. For the full interview guide, see Appendix 1.

A convenience² sampling method was used, with one interviewee coming from pre-existing personal networks, and the rest identified through Internet search results for funeral practitioners. Individualized invitations were sent to potential participants, with the aim of having four interviewees from each county, two from each practitioner group (standard/green), for a total of 12. However, though 41 invitations were sent (26 to standard practitioners, 15 to green practitioners), time constraints limited the window for recruitment and data collection proceeded with a total of nine participants. Interviews were conducted remotely using videoconferencing (Zoom platform), with audio/visual recording for later transcription and the researcher taking supplemental paper notes. All interviewees provided written informed consent prior to participation, including whether they wished to be identified by name (consent form can be found in Appendix 2). All but one participant chose to be identified by name, allowing for specific recognition of their expertise and generosity in contributing to the present research.

Interviewees were classified as green practitioners when their funeral home business website prominently featured green options and ecological values. For example, websites might have given green options their own webpage or prominently and repeatedly emphasized their commitment to lowering carbon emissions. Standard practitioners were defined as having funeral home business websites that did not emphasize green options, though they were not excluded from this classification if green options were mentioned in passing amongst conventional options. Most ($n=4$) green practitioners interviewed are also actively involved in advocating for and educating on alternatives at a regional and/or national level.

The UK, US and Canada were selected for practical reasons of access and expediency (e.g., no interview translation was required), and the relatively large amount of academic literature produced from these cultural contexts upon which a background understanding could be based. Furthermore, the deathcare cultures in the UK, US and Canada share a degree of commonality in their practices and priorities (Canning & Szmigin, 2010; Clayden et al., 2018). Attitudes and cultural narratives about death in the US and Canada have arguably been more culturally influenced by the UK than by continental Europe, and key practices of ecological significance (such as owning a burial plot in perpetuity, which leads to land constraints) are similar between all three (Haneman, 2020; Rumble et al., 2014). Therefore, though certainly not identical, these nations were judged as similar enough in their mainstream deathcare landscapes to allow for a blended investigation.

Within the US and Canada, access to deathcare alternatives varies widely depending on state or provincial legislation, and preference for burial or cremation follows strong geographic trends,

² A non-probability sampling method that does not seek to generalize or be truly random, convenience sampling makes use of accessible and readily available data sources (Blaikie, 2010).

with the west coast of both nations having a much higher rate of cremation (e.g., 85% in Washington state vs 48% in Mississippi, 91% in British Columbia vs 63% in Prince Edward Island) (CANA, 2021; National Funeral Directors Association [NFDA], 2021). Therefore, achieving a geographic spread of interviewees was prioritized during North American participant selection. Such geographic variability is also evident in the UK, with cremation rates in England and Wales (81%) vastly surpassing rates in Northern Ireland (22%), and to a lesser extent Scotland (70%) (FBCA, 2022, statistics from 2018). Unfortunately, none of the participants contacted in Northern Ireland, Wales or Scotland were available to be interviewed, and thus UK participants were limited to a variety of English locations. For maps of participant locations, see Appendix 3.

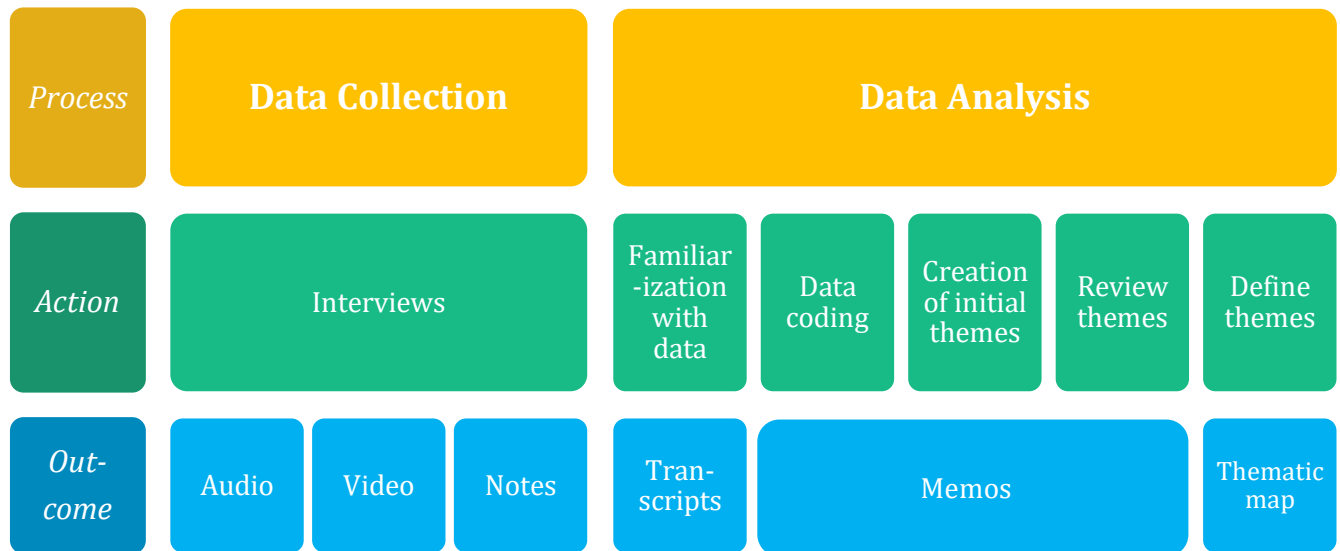
Finally, though it is still too early to fully assess the lasting societal impacts of the ongoing COVID-19 pandemic, health restrictions such as social distancing or the prohibition on in-person gathering forcibly changed conventional deathcare and its associated bereavement rituals (Corpuz, 2021; Sanders, 2020). Therefore, preliminary impressions of the impacts this massive upheaval might have on practices were collected as a component of the industry perspective under present research.

2.2 Data Analysis

Initial transcripts were generated using Microsoft Word's dictate function while playing the audio recordings from interviews. Transcripts were subsequently cleaned and corrected manually by the researcher, which allowed for a deep familiarity with the data. Following the framework for reflexive thematic analysis of qualitative data set out by Braun & Clarke (2006, 2021), the interview transcripts were then iteratively coded using NVivo to allow for the creation of converging categories and themes. Memo notes were taken throughout the analysis process, which promoted researcher reflectivity. Themes were reviewed and defined before being mapped. Please see Appendix 4 for the final thematic map used for report writing. This approach allowed for an inductive, flexible pursuit of meaning and was well-suited to exploration into industry perspectives and experiences (Galletta, 2013). A cascading visual of the research methodology used is represented in Figure 1 below.

Figure 1

Visual of Research Methodology



Note: Actions are located underneath the process they were a part of, outcomes are located underneath the action that created them

2.3 Key Terms

For theoretical clarity and transparency, it is imperative to detail the meanings, as understood by the researcher, of key terms employed in this project.

Reference to “*Western*” practices and values is here used to indicate social, political, economic, and legal environments that have been formatively shaped by western Europe’s philosophical, religious, and cultural traditions (Britannica, 2022). It is readily acknowledged that the term contains inconsistencies and can be problematic. Indeed, for as long as writers have invoked “the West”, the term has fallen under valid critique (e.g., Appiah, 2016). However, for the sake of brevity, the imperfect term “West(ern)” will be employed to indicate the overall legacy of knowledge, belief and custom between certain nations, namely western Europe, and its former colonies in North America.

The dictionary definition of the term “*ecological*” is the relationship between living things (here, human beings) and their environment (Merriam-Webster, n.d.). Use of the term in this project follows common parlance in that it also implies a certain moral imperative that the relationship between human and environment be one of balance, a dynamic which is sustainable and non-exploitative (Hobbs, 2016). Thus, “ecologically sound choices” would mean decisions that do not

excessively pollute the soil, air, or water. It is duly recognized that embracing this use of the term makes the word value laden, and that there are multiple (and conflicting) definitions of ‘pollution’ and ‘exploitation’.

Another word that is used cautiously is “*adaptation*”. Adaptation is a process of adjustment involving proactive, reactive, incremental, or transformational activities aimed at better surviving current or anticipated conditions of the environment (Becker, 2014; Merriam-Webster, n.d.-a). However, as importantly noted by Eriksen, Nightingale and Eakin (2015), adaptation is an essentially socio-political process: what is defined as adaptive or maladaptive depends on who has the power to set the agenda and frame the problem. Thus, and in a similar way to the present use of the term ecological, the discussion of “adapting deathcare to be more climate smart” involves alignment with a certain set of political priorities and a chosen definition of what’s ‘good’ for the environment. As understood in this research project, climate adaptation in deathcare might entail, for example, decreasing carbon emissions from crematoriums or using fewer single-use resource items during funerals and disposition.

2.4 Theoretical Background

As touched on briefly in the introduction, elements of dualism are pervasive in the cultural narratives that underlie Western deathcare (Kelly, 2015; Rumble, 2016; Sanders, 2019). Often associated with the philosopher René Descartes, dualism is an ontology that classifies humans as separate and distinct from nature (Kelly, 2012). This philosophical and cultural separation may contribute to the West’s deep sense of alienation and being set-apart from death (Sanders, 2020; Stewart, 2017).

This project disagrees with such an ontology, aligning instead with the view that humans and nature are intrinsically connected. This project draws partially on the tenets of ecofeminism, which brings together feminist and ecological concerns (Thompson, 2006). Under ecofeminism, the domination and oppression of women and nature both share a common root in patriarchal capitalism (Ibid.). Achieving liberation and equality necessitates that the corporal realities of an interrelated, holistic relationship with the earth be embraced, including the contribution death makes to natural cycles of decay and growth (Kelly, 2015).

However, ecofeminism has been criticized by postmodernist feminists for lacking intersectionality and depending too heavily on essentialist definitions of ‘women’ and ‘nature’ (Rothe, 2017; Thompson, 2006). A helpful corrective can be found in queer ecology theory, which is devoted to breaking down dualistic thinking, essentialism and assumed hierarchies (Gray, 2017). There is even a growing body of scholarship, known as Queer Death Studies, that focuses attention on “the

entangled relations between human and nonhuman others”, in particular the “differential experiences of marginalised communities, groups and individuals who are excluded from hegemonic stories and discourses on death, dying, grief and mourning” (MacCormack et al., 2021; Radomska et al., 2020, p.88). Such fields of theory, though far from common in mainstream narratives of Western deathcare, can beneficially validate a different, more interconnected way to live and die.

2.5 Limitations

The primary data collected represented the perspectives of a small number of individuals ($n=9$), and as such cannot be generalized to the wider deathcare industry. In keeping with a postmodern understanding of constructed knowledge, it is also acknowledged that the researcher for this project possessed a monopoly on the interpretation of meaning – particularly as they also coded the interviews (Braun & Clarke, 2021). Identifying features were redacted from the transcripts prior to analysis to attempt more systematic coding. However, the lingering cultural understanding, biases and perspective of the researcher are still expected to have impacted the analysis, and ultimately the conclusions drawn.

As previously mentioned, this project focused on deathcare as performed in the UK, the US and Canada. Walter (2005) compared funeral practices between Western cultures, in particular the various prominence of business, the state, and the church in determining the course of deathcare. He determined that the US represented the most extreme case of deathcare commercialization, with private enterprise having much more control than in countries like France, where the state assumes control of the body, or Sweden, where the church has more authority and funerals are funded via routine taxation (Ibid.; Efterlevandeguiden, 2022). Walter (2005) considers Canada to also have a commercially dominated deathcare industry, whereas he classifies the UK as a mix of commercial and religious. The countries selected for investigation may thus not be widely representational, even of other Western nations, particularly in their cultural death values. However, it was deemed of interest to research these more commercialized deathcare landscapes, as they may provide consumer environments especially primed for ecologically sustainable innovation. Furthermore, the global consumption of US media means that American depictions of deathcare practices have an oversized influence in setting normative expectations (Gibson, 2007; Doughty, 2018).

Finally, an important limitation of scope was the exploration of Western deathcare from a societal level only, as such this project was removed from the emotional and psychological impacts of the experience of dying on the individual or the recently bereaved.

3. Background

This section will introduce key features of Western death culture and values. It will also detail the main components of conventional Western burial and cremation and their ecological impacts. Finally, it will introduce some emerging alternatives to conventional practice and summarize the growing need for deathcare adaptation.

3.1 Western Death Values

Cultural narratives about death and dying vary greatly around the world and “these differences at once derive from a given culture’s worldview as well as influences its approach to death” (Gire, 2014, p. 3). Thus, in a circular way, a culture’s funeral rites both evolve out of, as well as feed into, priorities, values and attitudes surrounding death. Death anxiety and subsequent defense mechanisms, such as denial, detachment and sequestration, manifest to some degree in nearly every society, but Western ‘death illiteracy’ is particularly high (Chavez, 2019; Feagan, 2007; Gire, 2014). Furthermore, what a culture holds as important in life is reflected in their definition of a ‘good’ death, and thus wider Western cultural values of individuality, commercialization and sanitization are mirrored in their dominant death practices (Feagan, 2007; MacMurray & Futrell, 2021; Nuland, 2019).

It has not always been like this. Nearly every aspect of today’s conventional funeral, and its financial and ecological costs, would have been unrecognizable to people living in the UK, US, and Canada 150 years ago (Haneman, 2020; Harris, 2007; Sanders, 2019). Death used to happen at home, the body would have been washed and prepared by the family aided by women from the community, and then placed in a shroud or locally made wooden coffin (Kelly, 2015). Family and friends would assemble to hold vigil and, after a short period of ‘sitting up’ with the deceased, there would be a simple ceremony and the body would be placed in a manually dug grave, typically on a family’s own land or in a local church yard (Ibid.). Over the last century and a half, death has moved out of the home and into the hands of specialized professionals, it has been set apart from the course of everyday life, purportedly to protect the living from contamination and unpleasantness (Ibid.). Western attitudes and customs surrounding death tell of a culturally ingrained sense of denial and separateness from the biological realities of bodily decay, leading to alienation and disconnection from the inevitable conclusion of life (Feagan, 2007; Kelly, 2019).

3.1.1 Professionalization & Sanitization

In the late 1800s, populations in urban centers increased rapidly, putting pressure on ever more crowded inner-city church yards, and leading to sights and smells that were distasteful to Victorian sensibilities and a fear that the dead might infect the living (Rumble et al., 2014; The Associated Press, 2009). The dead were pushed out of sight into rural cemeteries and families with means increasingly began to hire undertakers to arrange the logistics of transporting and burying their dead (Kelly, 2015). Thus began the mainstream Western professionalization of death. Meanwhile, contemporary embalming³ arose out of the need to temporarily preserve bodies transported long distances during the American Civil War (1861-1865) (Archer, 2020). The practice was propelled to widespread popularity after the death of President Abraham Lincoln (1865), when his embalmed body was taken on a national tour *en route* to its final resting place (Walsh, 2017). Before long, an entire industry of mortuary science emerged. Today the funeral industry in the US commands an estimated \$20 billion USD annually, with the market share of the UK and Canada proportionately sizable (\$3.7bn and \$2bn USD, respectively) (IBIS World, 2021a, 2021b; Marsden-Ille, 2020).

Furthermore, a confluence of medical advances and societal shifts has meant that that death now rarely happens at home: in the US, 69% of deaths occur in hospitals or supportive care, while in the UK and Canada, perhaps due to their public healthcare systems, the rates are even higher, at 77% and 79% respectively (Adair, 2021). According to physician Sherwin Nuland in his book *How We Die*, death in hospitals is “hidden, cleansed of its organic blight and finally packaged for modern burial” (2019, p. xix). Whereas previous generations were intimately familiar with the sights, smells and feel of the dead, as death was in “the midst of life”, modern death is mediated by the medical and funeral industries, and has thereby increasingly become “staged, pre-packaged, sanitized and deodorized” (Jacobsen & Petersen, 2020, pp. 6, 9).

3.1.2 Denial & Dualism

Denial is the most thoroughly studied Western death value, so much so that some scholars have questioned if ‘denial’ can truly be an accurate term to describe a phenomenon so extensively researched (Tradii & Robert, 2019). Nevertheless, the denial of death, in particular the corporal actualities of it, has become so ingrained in Western thought as to be hegemonic (Gire, 2014; Robert & Tradii, 2019; Walter, 2005). It is unpleasant for most to imagine the cessation of their life, and so, beginning with Freud and his emphasis on repression and the subconscious, over a century’s worth of theory has developed to explain how and why Western society sublimates their

³ Embalming is the process by which bodily fluids are replaced with preservative chemicals to slow decay and restore a lifelike appearance to the corpse (Canning & Szmigin, 2010).

fear of death into willful oblivion (Jacobsen & Petersen, 2020; Robert & Tradii, 2019). Such denial manifests in sequestering death to sanctioned locations (hospitals, nursing homes), aversion to open conversation about dying, the lack of preplanning for funerals, and – some would say – the practice of embalming, which presents the deceased not as dead, but perhaps merely asleep (Feagan, 2007; Radomska et al., 2020; Walter, 2005).

Dualism between man and nature, life and death, mind and body, is evident in many Western narratives and rituals, leading to a sense of separation and alienation from the corporal realities of death (Radomska et al., 2020; Rumble, 2016; Thompson, 2006). Some scholars have argued that the proliferation of depictions of death in Western media, be it in horror movies, crime thrillers, or sensational coverage of grisly murders or natural hazard events, is a way to relieve some of the psychic tension created by collective alienation from death, without having to face the ugly, complicated, personal realities of it (Gibson, 2007; Jacobsen & Petersen, 2020).

3.1.3 Ecological Impacts of Western Death Values

Cultural values surrounding death have tangible environmental consequences. A main tenet of ecofeminism is that the Western dualistic dynamic between (hu)man and nature provides ground for rationalizing ecological exploitation and degradation (Selam, 2006; Thompson, 2006). Rather than embracing this ontology of humans as separate and hierarchically positioned above the non-human world, ecofeminists and green death advocates recognize humans' dependent relationship with the physical matter of the planet, and, through death, the body's place within the carbon-cycle. As Barnett writes, "we are of this world, not apart from or above it" (2018, p. 26). Dead bodies can literally and symbolically manifest the "integral connections and ties that we have to the biosphere, our place on this earth, and the duties that necessarily follow from those ties" (Feagan, 2007, p. 163).

Furthermore, Pihkala (2018) argues that Western death anxiety shares common ground with Western climate change anxiety, and that similar unhelpful coping mechanisms are deployed against both (e.g., minimizing individual agency, difficulty in talking openly and honestly about topics that feel overwhelming). Rather than continue this course, they propose antidotes to the worry, fear and anxiety commonly felt towards both death and climate change. Namely, Pihkala proposes embracing that which is feared via open discussion and the active acknowledgment and processing of grief, thereby allowing both topics to be approached with a greater sense of agency and hope (Ibid.).

3.2 Western Burial

Burial exists in some form in nearly every culture, present and past, and may even have been practiced by genetic relatives of early humans some 300,000 years ago (Macfarlane, 2019). Some anthropologists hold that “to be human means above all to bury”, and that the Latin *humanitas* first referred to notions of burial, earth, and soil (Ibid., p.30). The concept of the body returning to deep earth as a place of rest and transformation persists today in a multitude of cultural contexts (Doughty, 2018; Siu, 2005). Christianity, like many faith traditions, holds symbolic and mystic associations with burial, as the third chapter of the Bible states:

By the sweat of your brow, you will eat your food, until you return to the ground, since from it you were taken; for dust you are, and to dust you will return. (*New International Version*, 1973/2011, Genesis 3:19)

The foundational elements of Western burial are widely familiar, even if they have not been personally experienced, due to their pervasive depiction in media and literature (Gibson, 2007). Although no two funerals are identical, and certain religious, ethnic, or cultural communities (e.g., Jewish, Muslim, Black, Indigenous groups) maintain unique traditions (Cann, 2020; Fear-Segal, 2010; Walter, 2005), there is nevertheless a pervasive recipe for what a ‘full-service’ Western funeral with burial entails (Federal Trade Commission, 2012; Harris, 2007). To understand how resource-intensive such practices are, it is helpful to elucidate their standard course.

Once an individual has died, typically in hospital or nursing home care, the next of kin engages the services of a funeral director - overwhelmingly this is the first funeral director contacted, grief-stricken individuals are not likely to shop around (Haneman, 2021; SunLife, 2022). The body is then transported to a funeral home for storage, while arrangements are made per the prearranged directives of the deceased or the wishes of the bereaved. If the funeral service is to include an open casket, or if the corpse will otherwise be viewed by friends and family, it is likely that embalming will be recommended, especially in the US and Canada (Harris, 2007). Regardless of the choice on embalming, the body is nearly always washed and fully dressed, their hair is washed and set and make-up is applied to provide a peaceful, pleasant appearance. Viewing or visitation with the body is followed by a ceremony, typically conducted within the funeral home or at a church, after which time pallbearers carry the casket into a vehicle for transport to the burial site (Haneman, 2020). In the UK, US and Canada, burial plots are purchased in perpetuity⁴ (Tang, 2019). Most conventional cemeteries mandate the purchase of a grave liner or burial vault: a case, typically made of cement or steel, that partially or fully surrounds the casket. Originally meant to deter grave robbers but

⁴ London, England is a technical exception, graves there can be legally reclaimed after 75 years, though they seldom are (The Associated Press, 2009).

marketed today as impervious protection against the elements, these cases are required by the cemetery for a more practical reason: caskets will eventually collapse under the weight of the soil, without reinforcement the ground above would crater, making cemetery lawn maintenance cumbersome (Harris, 2007; Stock & Dennis, 2021). By the time the deceased and their accompanying group arrive at the burial site the grave will already have been mechanically dug, mounds of dirt often tactfully hidden under green tarps (Blakemore, 2016). A last graveside ceremony is then held before the casket is lowered into the ground and final words are spoken. The burial ceremony tends to conclude with mourners convening at another location for food and drink and to share condolences with the bereaved (Harris, 2007). The grave is later filled and marked, typically with an etched stone (Keijzer & Kok, 2011).

The components of a modern funeral are designed, according to convention, to allow the bereaved to grieve and process their loss in a facilitated and supported environment (Lynch, 2004), though the necessity of certain components is increasingly questioned (Archer, 2020; Barnett, 2018; Feagan, 2007). However, neither the raw materials consumed by a standard burial, nor their cost and lasting environmental impact, are commonly considered or discussed (Haneman, 2020; MacMurray & Futrell, 2021).

The average cost of a North American burial is now over \$7,800 USD, excluding the vault and burial plot, which tend to push costs over \$10,000 USD (Haneman, 2021; NFDA, n.d.-a). In the UK, where burials have decreased dramatically in part due to the high price of plots, an average funeral, excluding vault or plot, costs over \$8,100 USD (SunLife, 2022). This means that for the average person in the US, funeral proceedings now constitute their third largest one-time expense, after a home and a car (Haneman, 2021). Funerals are an increasingly crushing financial burden for families, an economic phenomenon recently dubbed 'funeral poverty' (Haneman, 2021; Marsden-Ille, 2020a). Indeed, the cost of burial has risen dramatically over the last few decades, out of step with inflation and other consumer products (Haneman, 2021). In the US, burial expenses have risen in price by 227% since 1986, versus an 123% increase for other categories of goods, largely due to skyrocketing casket prices (Bureau of Labour Statistics, 2017). Many funeral directors are driven by a mission of care, not profit, and thus find creative and thoughtful ways of keeping within the budget of the bereaved. Nevertheless, clientele at a funeral home tend to be in a uniquely vulnerable emotional and mental state and questioning the price or necessity of line items may feel uncouth or dishonouring to their recently departed loved one, potentially leaving them exposed to unscrupulous sales tactics (Canning & Szmigin, 2010).

3.2.1 *Ecological Impact of Burial*

Caskets are the largest contributor to a burial's carbon footprint, according to a recent life cycle assessment (Keijzer, 2017). From the stuffing and lining inside the casket, to the (often exotic) hardwood of its construction, and the exterior metal finishings, caskets are resource-intensive to construct, transport and, ultimately, bury (MacMurray & Futrell, 2021). Varnish, sealants, and resins applied to the surface of caskets may contain toxic chemicals which leach into the surrounding soil (Canning & Szmigin, 2010; Hart & Casper, 2004). Heavy metals such as iron, lead, nickel, and zinc, originating from caskets finishings, also erode into the soil, in addition to mercury from dental fillings, and arsenic used as a preservation chemical in older burials (Olson, 2016; Spongberg & Becks, 2000). Other elements put into the ground each year include an estimated 13,000 tons of steel and 1.5 million tons of concrete, in the US alone, in the form of vaults and grave liners (TalkDeath, 2021). Humans also increasingly contain non-biological components (which are rarely removed prior to burial) that do not quickly decompose, such as dentures, pacemakers, implants, and prosthetics (Keijzer, 2017).

If the body was embalmed prior to burial, this adds multiple pathways of potential harm. Formaldehyde, the primary component of conventional embalming fluid, is a known carcinogen and professional embalmers have higher rates of certain rare cancers (American Cancer Society, 2022; WHO, 2002; Martin, 2011). Recent embalming effluent testing done in Canada by Kleywegt et al. (2019), found elevated levels of multiple contaminants which, depending on dilution and water treatment capacity, may have harmful effects on treatment plants and receiving environments. Such contaminants are also destined to years of slow leaching into surrounding soil and groundwater once an embalmed body is buried (Chiappelli & Chiappeli, 2008; Hart & Casper, 2004; van Allemann et al., 2018). The quantity of embalming fluid buried inside bodies each year is significant: a typical embalming uses around 11 liters (more than three gallons) per body (Martin, 2011), in the US this equates to over 15,000 kiloliters (>4 million gallons) per year (TalkDeath, 2021). Even without embalming, a decomposing body still extrudes potentially harmful elements such ammonia, chloride, and *E. coli*, in addition to radioactive particles from any past radiation therapy and lingering pharmaceuticals compounds, thus safe burial must always consider surface and groundwater proximity and soil composition (Zychowski & Bryndal, 2015; Kim & Kim, 2017; United Kingdom Environmental Agency, 2020a; Uslu et al., 2009). Proper regulation and monitoring are particularly critical in warm, moist climates where leaching into soil and water can happen more rapidly and widely– for example, it is estimated that 75% of cemeteries in Brazil significantly pollute their larger environment (Silvia (2000) as quoted in Zychowski & Bryndal, 2015). An overview of the topic concluded that cemeteries “pose a severe pollution potential, especially if poorly located or incorrectly managed. Leachate produced...is of a

highly pathogenic nature and can pollute soils and groundwater, representing a potential hazard to public health” (Oliveira et al., 2013, p.105).

Another source of ecological impact is floral arrangements. A ubiquitous component of ceremonies and gravesites commemoration displays, flowers are likely to be imported, sprayed with unregulated pesticides, and packaged in plastic (Elite Learning, 2017). Grave markers are also often made of imported stone and may require extensive, carbon-based transport to reach their destination (Keijzer & Kok, 2011). Finally, cemetery lawns tend to be meticulously manicured by routine care with heavy machinery, pesticides, and fertilizers, all of which have ecological consequences (Clayden et al., 2018). With burial plots in the UK, US, and Canada sold under the presumption of perpetuity, this equates to essentially “lifetimes of land and water use, pesticides, and labor” (Chavez, 2019, para. 16). In tallying the impacts of burial, it is important to consider that cemeteries also provide critical ecosystem services (e.g., urban green space, permeable land for stormwater absorption and microclimate regulation), in addition to serving as historical spaces of meaning and mourning (Quinton & Duinker, 2019). Yet this does not negate the fact that cemeteries constitute some of the most heavily polluted human landscapes and must be carefully managed so as not to endanger the surrounding environment (Russell-Clarke, 2019; UKEA, 2020b).

An additional resource dimension of burial is the land it requires. It is estimated that a typical Western gravesite for one person takes 10m² (Keijzer, 2017). Given present conditions of rapid urbanization, population growth and industrialization, the preservation and protection of land is paramount to a sustainable future (Lee et al., 2022). In England, nearly half of all cemeteries will run out of room by 2033, a trend that is mirrored around the world, and the need for land, for both the living and the dead, is only expected to increase (McManus, 2015).

Climate change is also acting upon cemeteries in new and challenging ways. For example, Mueller and Meindl (2017) surveyed 542 island cemeteries in the Caribbean and concluded that nearly 200 are currently vulnerable to flooding. Given the near certainty of sea level rise and coastal erosion in the next century, this inventory will only grow. Coastal communities also face challenges. Hurricane Katrina damaged over 1,500 New Orleans’ gravesites, causing disinterred caskets to go floating through neighborhood streets, a disturbing visual for residents and a logistical nightmare for cemetery managers to identify and rebury (Blanks, 2020).

3.3 Western Cremation

Cremation has deep roots in antiquity. Archeologists believe the practice may have been used in India as far back as 2,000 B.C., and it was also popular with the ancient Greeks and Romans, who saw the burning of the body as a way of purifying and releasing the soul (Harris, 2007). In keeping with sentiments of cleansing and release through fire, cremation remains the disposal method of choice for many faith groups around the world, including Buddhists, Sikhs, and Hindus (Canning & Szmigin, 2010; Robinson, 2021). Once Christianity began to spread in Europe, cremation fell out of favor for many centuries due to associations with paganism; the Catholic church condemned the practice, deeming the burning of bodies a desecration which disrupted bodily resurrection (Robinson, 2021). The first legal modern era cremation in the West took place in the UK in 1885, though cremation was not recognized by the Pope as an option for Catholics until 1963 (Ingram, 2020; Walter, 2005). Thereafter, cremation rapidly became mainstream, particularly in the UK, where it was marketed as a hygienic, efficient, and cheap(er) alternative to burial (Robinson, 2021; Rumble et al., 2014). Cremation is also promoted as a less resource-intensive, 'green' option, that circumnavigates the perceived pomp of the funeral industry and leaves "land for the living" (Yarwood et al., 2015, p.174).

In 2021, 75% of deaths in the UK ended in cremation, versus 58% in the US and 76% in Canada (NFDA, 2021; SunLife, 2022). Yet cremation became the majority (+50%) choice at quite different times in these nations: 1968 in the UK, versus 2016 in the U.S and 2004 in Canada (The Cremation Society, 2004, 2016, 2021). Cremation rates are expected to continue to rise in North America, reaching a projected 78% in the US and 88% in Canada by 2040 (NFDA, 2021).

The course of a standard Western cremation often follows much the same trajectory as a standard burial (Harris, 2007). The corpse will still be collected by a funeral director and held in their morgue, and it may still be embalmed in preparation for visitation or an open casket. Though containers chosen for cremation tend to be more modest than those selected for burial⁵, there is nothing preventing the selection of highly ornate and decorated caskets, so long as they are safe to burn (Harris, 2007). The service and procession may happen just the same as with burial, and though last remarks at the crematorium are not as common as graveside services, some bereaved do choose to accompany the body right to the crematorium. Once there, the casket is slid into an incineration unit, that over the course of two to three hours will reach temperatures of 750 to 980°C (1,400 to 1,800 °F), burning everything inside (Sanders, 2019). Foreign objects containing batteries, such as pacemakers or hearing implants, must be removed from the body prior to incineration because they could explode, melt, or burn, damaging the machinery and/or causing a

⁵ An estimated 80% of cremation caskets in the US are of plain cardboard (Harris, 2007).

safety hazard for staff (Harris, 2007). Remaining bone fragments (weighing 1-4kg/3-9 lb, for an average adult) are then gathered and ground into a fine ash to be collected by the bereaved or the funeral home (Harris, 2007). Ashes, or cremains as they are technically known, may subsequently be buried in a cemetery, scattered, or even mixed into an ever-broadening array of consumer products, such as tattoo ink or vinyl records (Haneman, 2020). Another possibility, outside the financial reach of many, is turning cremains into a synthetic diamond, a high-tech recollection of Victorian death-cult traditions that made jewelry out of the bones, teeth or hair of loved ones (Krupar, 2018).

It is a misconception that cremains can be used to nourish a tree or a plant. Rather, they are a sterile mixture of mostly phosphate and calcium, with a sodium and pH level that is hostile to plant life (Calderone, 2015; Funeral Guide, 2019; Harris, 2007). However, products aimed at the ecologically minded still abound, including soil packets specially formulated to dilute the sodium and lower the pH of cremains, or cement structures into which small amounts of cremains are mixed before being sunk off the coast to provide scaffolding for coral reefs (Bernal, 2020; Let Your Love Grow, n.d.).

Direct cremation, a streamlined option that involves the body going straight from the location of death to the crematorium, without a funeral service or ceremony⁶, grew exponentially in popularity, whether by choice or grim necessity, during the COVID-19 pandemic (Woodthorpe et al., 2021). Representing just 2% of dispositions in the UK in 2018, by 2021 direct cremation rates had jumped to 18%, and many industry experts anticipate it will continue to gain popularity due to its low cost and simplified decision-making process (NFDA, 2021; SunLife, 2022).

As detailed above, cremation proceedings run from highly elaborate to streamlined and simple, with corresponding price points. The median cost for a cremation with a funeral service in the US and Canada is about \$7,000 USD (the UK is more expensive, with costs equivalent to ~\$8,300 USD), excluding further charges arising from burying the ashes or storing them in an elaborate urn (NFDA, n.d.-a; SunLife, 2022). Conversely, a typical basic direct cremation costs \$1,100 USD in North America (~\$2,100 USD in the UK) (Haneman, 2021; SunLife, 2022).

3.3.1 Ecological Impact of Cremation

The main ecological concerns with fire-based cremation are the energy it requires and the emissions it releases. It takes a substantial amount of energy to incinerate a human body, and the vast majority of crematoriums are fossil-fuel powered (Copeland, 2020; Harris, 2007; Lee et al., 2022). Each cremation requires the equivalent of two tanks of gas for an average vehicle (Little,

⁶ Though one may be held at a later date.

2019) and releases between 250-400kg (550-880lb) of carbon dioxide (CO₂) into the atmosphere (Copeland, 2020; Kalia, 2019). That means that in the US alone, cremation adds 360,000 tons of CO₂ into the atmosphere every year (TalkDeath, 2021). Ultimately, Keijzer's (2017) life cycle assessment estimated the carbon footprint of cremation to be more than double that of burial (210kg vs 97 kg CO₂ equivalents).

Another negative ecological impact is the vaporized mercury released during cremation⁷, with annual US emission estimates ranging from 145kg to over 2,700kg (320lb to >6,000lb) (Haneman, 2020). In the UK, crematoriums contribute approximately 16% of the nation's total mercury emissions; in Canada they represent a smaller, though still impactful, 6% (O'Keeffe, 2020; Robinson, 2021). Mercury fillings are increasingly rare in current dental practice, however, with cremation rates on the rise⁸, this problem may get worse before it gets better (European Environmental Agency [EEA], 2018; Green et al., 2014). Mercury is a potent neurotoxin that causes a litany of cognitive, visual, and cardiovascular problems; it is also persistent, meaning that, rather than breaking down, it accumulates inside tissue, water, air, and soil, and thus remains in circulation for thousands of years (EEA 2018; González-Cardoso et al., 2020). Because of this, it can be said that there is no 'safe' amount of mercury emissions, leading to the establishment of international coalitions such as the Zero Mercury Working Group, which aim to reduce or eliminate all forms of mercury pollution (European Environmental Bureau, n.d.).

Other crematorium emissions of concern include fluorocarbons and carbon monoxide (greenhouse gases), nitrogen dioxide (a potent respiratory irritant), polychlorinated dibenzodioxins and furans (possible human carcinogens), in addition to radioactive material and prions (from bodies that received cancer treatments or died of certain diseases) (Lasnoski, 2016; O'Keeffe, 2020; Robinson, 2021). If the body was embalmed prior to being burned, those chemicals are likewise vaporized, including formaldehyde and phenol, though their atmospheric half-life is thought to be short (Kleywegt et al., 2019; WHO, 2002). Of course, it is not just the body and its possible contents that are burned during cremation. Other incinerated components may include a casket containing synthetic glues, sealants, and heavy metal, in addition to any memorial items tucked inside (European Monitoring and Evaluation Programme & EEA, 2019; Rumble et al., 2014). If the deceased arrived from an institution, they are also likely in a plastic body bag, which will generally be kept on and burned inside the cremation container (Harris, 2007). Ironically, some caskets marketed as green alternatives, such as those made of willow, bamboo or compressed recycled paper may be incompatible with industry standards for cremation; they may stain or damage equipment or result in much more fine ash, which clogs crematorium flues and leads to longer burn times, thereby increasing fuel usage (FSJ, 2012).

⁷ Primarily from dental fillings, though the body also contains accumulated mercury (EEA, 2018).

⁸ And older demographics more likely to have received such fillings still constituting a large share of cremations.

Vaporized chemicals and microparticulate from cremation may fall and settle onto the land surrounding the crematorium, be inhaled directly, or bind to dust particles in the air, ultimately returning to earth in various forms of precipitation, whereby they will integrate into the receiving environment's soil or water (Mari & Domingo, 2010; Tibau & Grube, 2019). Despite having the same function, crematoriums are not typically regulated like other incineration facilities, resulting in a patchwork of emission and filtration guidelines that have been a longstanding issue of concern (Leary, 1991; Mari & Domingo, 2010). Elevated rates of adverse health effects, such as stillbirth, have been found in proximity to crematoriums, though a causal link has not been established (O'Keeffe, 2020). Nevertheless, many air pollution scientists urge a precautionary approach to crematorium emissions, advocating for more research and regulation (González-Cardoso et al., 2020; Mari & Domingo, 2010; O'Keeffe, 2020).

One environmental advantage of cremation is that metal from within the body (e.g., artificial joints and screws) can be recovered and recycled (Institute of Cemetery and Crematorium Management, 2020; Rumble et al., 2014). This practice has been more widely accepted in the UK than in the US and Canada, in the latter countries such metallic debris are often treated with decorum: many crematoriums collect and bury the bits *en masse* a few times a year (Harris, 2007). There have also been recent efforts to improve the fuel efficiency of crematorium technology and reduce emissions, yet even if such mitigation features are installed, they are not always used (Robinson, 2021). Some Asian and continental European ventures are attempting to capture excess heat emitted from crematoriums and put it to use as energy, a grimly utilitarian, if practical, initiative (Krupar, 2018). Finally, electric cremators which emit up to 90% less CO₂ and 50% less nitrogen dioxide than current gas-powered cremators have been invented, though their implementation across the UK and North America is thus far slow (Copeland, 2020; FSJ, 2021).

3.4 Alternatives

Spurred by dissatisfaction with the available options, be it their ecological impact, their cost, or their dissociation and alienation, a 'green death' movement emerged in the late 1990s (Kelly, 2015; MacMurray & Futrell, 2021). Beginning with advocacy for natural burial, sustainable after-death options now run the gamut from the extremely stoic to the elaborately technical (Krupar, 2018). Some would be instantly familiar to 19th century inhabitants, while others have arisen out of the unique constraints and innovative mentalities of the present age.

3.4.1 *Reclaimed*

Natural or green burial is, in essence, a return to how burial was practiced throughout most of human history (Kelly, 2015). Typically, a natural burial prohibits the use of embalming and mandates caskets be biodegradable, if used at all, and that the body is buried without any vault or grave liner (Stewart, 2018). Natural burial cemeteries, or portions of conventional cemeteries set apart for natural burial, are either lightly tended without chemicals or heavy lawn-mowing machinery, or else left entirely to ‘rewild’. Furthermore, the legal status of land changes once bodies have been interred in the ground, which allows some an ending that is deeply in accord with their values (Harris, 2007). In what has become known as ‘conservation burial’, plots deliberately shield land from future development, thus, ‘burial activism’ aligns with wider environmental conservation efforts (Ibid.). For example, Clayville (2016) writes about a group of American nuns who plan to strategically use their bodies as a way of saving land for migrating birds. Conservation burial grounds can offer a meditative final resting place; some proponents even explore the terrain prior to death, lying down in various spots to assess the view (Stewart, 2020).

The first modern Western natural burial site was founded in 1993 in the UK, allowing more time for green death practices to become normalized there than in the US and Canada⁹ (Uslu et al., 2009). However, this movement is not without its contradictions and squabbles, for example, the quantity and substance of grave markers is contested. Some sites savagely oppose anything not deemed ‘completely natural’, while others are permissive of non-native plants, small trinkets, and memorabilia (Stewart, 2018). To some practitioners, the movement’s foundational ethos that death and decay solidify humanity’s lasting connection to the earth is fundamental (Ibid.). To others, the choice to have a natural burial is financially motivated: stripping a funeral of accessories makes it a lot cheaper (Yarwood et al., 2015). Interestingly, the active participation required to prepare and bury the body (graves are often dug by hand) can help the bereaved with their grieving process, as it has for previous generations (Stewart, 2018). Rather ironically, as Yarwood et al. (2015, p.175) note, “modern western society had to first denaturalise burial to then reinvent ‘natural death’”. The decomposition of human bodies must be carefully managed, as noted in previous sections, however, natural burial does allow for the relatively unencumbered integration of bodies into soil, thereby feeding nutrients back into ecological cycles (Kelly, 2015).

Critiques of natural burial assert that tending the conventional grave of a loved one provides a duty of care that allows the bereaved to materially express their grief, and note common accessibility issues with natural cemeteries, which are often remotely located and may lack pathways (Balonier et al., 2019). Balonier et al. (2019) go on to state that many natural cemeteries are no less

⁹ The UK national advocacy council for green burial was established in 1991, versus the founding of similar agencies in the US (2005) and Canada (2013) (Clayden et al., 2018).

constrained and managed (e.g., by the setting of opening hours or the prohibition of memorial artifacts), than conventional cemeteries, despite their green marketing. Their criticism can at times be circular, a lack of restrooms contributes to inaccessibility, but the addition of bathrooms detracts from the 'natural-ness', highlighting the subjectivity inherent in the word 'natural' (Mehrabi, 2020). The expenditure of land is still a consideration (Canning & Szmigin, 2010), though as aforementioned, conservational burial can preserve and restore habitats and natural cemeteries offer even more ecosystem services than conventional cemeteries, due to their more complex and diverse biospheres (Clayden et al., 2018; Harker, 2012).

Another long-standing disposition method gaining new popularity is burial at sea. Long the disposition choice for navy personnel around the world¹⁰, sea burial or cremains dispersal is a growing market for civilians as well (Harris, 2007). Environmental regulations typically stipulate that containers, be they for body or ash, be biodegradable, as must any flowers or memorial objects going overboard in accompaniment (US Environmental Protection Agency, 2022). Caskets are typically not mandatory, but bodies must be at least shrouded and weighted in such a way that they rapidly and permanently sink (Ibid.). Many bereaved describe a sea burial or dispersal as a peaceful, serene alternative to the gloom and melancholy they previously experienced with on-land ceremonies (Harris, 2007).

3.4.2 *Innovative*

Industry disruptive technology is also on the rise, with an emphasis on climate-smart alternatives that are transformational, literally (Bernal, 2020; Kiley, 2021). The most widely available is alkaline hydrolysis, also known as aquamation, water cremation, or the brand name Resomation (Kalia, 2019; Panecasio, 2020). Alkaline hydrolysis is currently available in a growing number of US states and Canadian provinces and is expected to be implemented in the UK within 2022 (Robinson, 2021). The process involves submersion of the corpse within a metal cylinder in a solution of 95% water and 5% either potassium or sodium hydroxide, which is then heated and pressurized, thereby dissolving the body within a few hours (Elite Learning, 2017). Though it appears high-tech, with gleaming silver chambers and finely tuned machinery, the process mimics how a body would decompose in soil, just “sped up by the use of heat, pressure, and chemicals” (Robinson, 2021, p. 5).

Alkaline hydrolysis is also not entirely new. The technique was first developed in 1888 to dispose of animal carcasses, and has for many years been a common method of final disposition for human bodies donated to science (Panecasio, 2020). Nothing goes in with the body aside from the shroud

¹⁰ And one that is paid for by the US Navy for any former service individuals, their spouses, or their dependents.

it is wrapped in, which must be biodegradable, often silk or wool (FSJ, 2011; Robinson, 2021). After the process has finished, the remaining bleached bones are ground into a powder and returned to kin, any remaining metal, plastic, or dental fillings can be recovered and recycled, and the DNA-less effluent can be flushed back into the greywater system or even used as a nutrient-rich fertilizer (Lasnoski, 2016). If the body was embalmed, the alkaline solution speeds the breakdown of the preservation chemicals, and prions are likewise destroyed (Ibid.). Alkaline hydrolysis uses electricity (approximately 10% that required by fire cremation), however unlike fire cremation, it does not release CO₂, vaporized mercury, radioactive particles, or other incineration-related emissions (Krupar, 2018; Lasnoski, 2016). For all these reasons, some dub alkaline hydrolysis the “Toyota Prius of the funeral business” (Lasnoski, 2016, p. 241). It does require approximately 950 liters (~250 gallons) of water, though as aforementioned, this can be recycled through existing treatment systems (Krupar, 2018).

Another emerging alternative is natural organic reduction (NOR), also known as human composting, or recomposition (Glick, 2021; Marsden-Ille, 2020c). NOR’s typical course is for the body to be placed inside a capsule with a mix of wood chips, straw, and alfalfa, and then aerated, moistened, heated, and turned, so as to quickly disintegrate and ensure the resulting soil is safe from contaminants (Alfus, 2020; Sanders, 2019). After one to two months, the result is 1.5-2 cubic meters of soil, enough to fill several wheelbarrows, which can be given back to kin or donated (McDuff, 2022). The simplicity and usefulness of this choice is appealing, reconnecting the body with its ability to nourish, even after death. Washington state was the first place in the world to legislate this process, and the first human-composting funeral home, titled Recompose, began operations in late December 2020 (Kiley, 2021).

The present suburban warehouse form of Recompose, with its gleaming white honeycomb arrangement of individual pods, differs substantially from founder and advocate Katrina Spade’s initial proposal, then dubbed the Urban Death Project (Ibid.). In her original conception, the dead would be carried three stories up along a large, circular walkway and gently placed within the core of a central chamber filled with other organic material and, critically, other bodies (Spade, 2016). As time passed, and the body decomposed, it would gradually travel down, eventually emerging at the bottom of the chamber as rich, usable soil. These centers were particularly envisioned to be a feature of dense urban areas, providing an ecological solution to those who may not have access to rural natural cemeteries (or who’s access via long-distance travel would negate their wishes to die in a carbon-conscious way) (Ibid.). Spade’s vision provocatively did away with the individuality of death, the mingling of remains calling people into a new, radical form of collective transformation (Kiley, 2015). More than perhaps any other form of disposition, the metaphors and symbolism of NOR are ecologically potent, as Barnett (2018, p.27) writes, “composting is productive. Within compost piles, things transform...Human composting draws us back into the land community as

plain members and citizens”. Recomposition “represents a moral return of our mortal remains to a more-than-human web of life” (Sanders, 2019, p. 123).

In a similar vein is the Infinity Burial Suit or similar, also known as ‘mushroom suits’ (Haneman, 2020). Available for about \$1,500 USD, this cotton shroud is seeded with thousands of mushroom spores, which manufacturers claim hasten decay and neutralize harmful by-products of decomposition (Ibid.; Krupar, 2018). However, critics assert that mushroom suits are a superfluous accessory, meant to capitalize on eco-minded consumers (Ionescu, 2020). The body’s own bacteria, aided by insects, nematodes, fungi, and bacteria in the surrounding soil, need no assistance in the work of decomposition, and it is not clear that a mushroom suit offers any particular benefit over a regular natural burial (Ibid.).

An alternative that is much hyped for its space-age appeal is cryomation, also known under brand name Promession, which is the process of essentially freeze-drying the human body (Funeral Guide, 2019; Rumble et al., 2014). First, the corpse is submerged in liquid nitrogen, which renders it frozen and brittle, then ultrasound or mechanical vibrations gently shake the body into a powder (World Funeral News, 2021). Remaining water is evaporated and debris such as prosthetics or dental fillings are sifted out and recycled (Ibid.). Unlike cremains, cryomation remains are nutritionally available to microbes and plants, thus it is suggested that they be buried in a small, shallow grave, allowing for their reintegration with the topsoil within a year (Haneman, 2020; Lee et al., 2022). According to its inventor, Swedish marine biologist Susanne Wiigh-Mäsak, Promession “leaves no residue in the air, no pollution in the groundwater, no dangerous emissions in the atmosphere” (as quoted in World Funeral News, 2021, para. 6). However, bankruptcy of the original Promession company, in addition to the recent death of Wiigh-Mäsak, has stalled further implementation of this alternative (Ibid.). Though it has been legalized in Sweden, South Korea, and the UK, until now the process has only been tested on pigs, never on a human body, and there is some doubt as to its feasibility (Ibid.).

3.5 Adaptation Imperative

This is a unique moment in the history of deathcare. In the West, rising global urgency to divert the worst of the climate crisis is colliding with a crucial demographic shift. By 2030, all of the Baby Boomer generation will have reached age 65 or more, one in five people in the US will be of retirement age and the older generation will outnumber their children for the first time (US Census Bureau, 2018). This has deathcare reports, such as one recently prepared for investors in funeral industry giant Service Corporation International (SCI), anticipating a boom in revenue (Heller, 2019; SCI, 2022). As the report puts it, “looking ahead, the demographic landscape of an aging population provides significant opportunity for future growth” (SCI, 2022, slide 14). There is also

growing demand for deathcare alternatives, in the NFDA's most recent consumer poll, 55.7% of those surveyed said they would be "interested in exploring 'green' funeral options" (NFDA, n.d.-a, para. 4). Finally, the COVID-19 pandemic forced the deathcare industry's hand, demonstrating that adaptation of ritual and ceremony is possible, even if it is under the duress of tragic circumstances (Cann et al., n.d.; Sarmiento, 2020; Zavattaro et al., 2021).

Just as societal meaning and practice has evolved for major life events such as birth (rising popularity of doulas, midwives, and home births) and marriage (increase in personalization, decrease in religious tradition and symbolism), so too is there a growing movement to reclaim and transform the event of death (Kiley, 2015; MacMurray & Futrell, 2021; Yarwood et al., 2015). Each famous individual's death that ends in alternatives, such as Archbishop Desmond Tutu's recent choice of alkaline hydrolysis or actor Luke Perry's choice of a mushroom suit, brings greater awareness of options beyond the standard two-item menu (Agence France-Presse, 2022; Bernal, 2020).

To decrease its contributions to the climate crisis, deathcare must adapt. Aside from the physical consequences and limitations of deathcare as currently performed in the West, some have even argued that there is a moral imperative to move towards more sustainable options of disposition (Stowe et al., 2001). What factors might finally push the deathcare industry, a trade "40 to 50 years out of date technologically and culturally" towards systemic change (Josh Slocum as quoted in Haneman, 2020, p.25)? The interview results give insight into where the industry is at present, how the scales might tip, and what deathcare professionals anticipate in the next decade.

4. Results

Several major themes were defined from the interviewees' perspectives on current practice, the funeral industry's ecological impact and their predictions (and hopes) for the future.

A summary of the main findings is presented in Table 1 below (mapping of all themes identified during data analysis are modeled in Appendix 4).

Table 1*Overview of Themes*

	Consensus of Perspective	Varying Perspectives
Values <i>(research question #1)</i>	<ul style="list-style-type: none"> • Death is sequestered, denied • Ceremony is important 	<ul style="list-style-type: none"> • Current practice is emotionally insufficient
Ecological Impact <i>(research question #2)</i>	<ul style="list-style-type: none"> • Deathcare has negative ecological impacts • Greenwashing is pervasive and manipulative 	<ul style="list-style-type: none"> • Degree to which alternatives decrease negative ecological impacts
Adaptation for a More Sustainable Future <i>(research question #3)</i>	<ul style="list-style-type: none"> • Cremation rates will increase • Some COVID-19 changes will persist 	<ul style="list-style-type: none"> • Degree of uptake of alternatives in next decade • Barriers to providing alternatives • Forces of change

These themes will be discussed in greater detail below, accompanied by illustrative quotations lightly edited for utterances and clarity.

4.1 Values

Interviewees shared a deeply held desire to uphold the dignity of the deceased, through care of the body and the fulfillment of final wishes. At a societal level, interviewees wanted to see more transparency in their industry, more open discussion about death and less sequestering of the funeral industry from the rest of public life. The meaningfulness of ritual and how such meaning is lacking at times from current practice was also highlighted.

4.1.1 Personal Values

As a lead-in to questions concerning the values that underlie societal behaviour and custom, interviewees were asked about the personal values that drive them professionally. Individually held values of honesty, service and kindness were manifested by offering families options and

guiding them through the deathcare process with care and transparency (by, for example, accommodating unusual requests and being upfront with pricing). Participant details, including their motivation for joining the funeral industry, are listed in Table 2 below

Table 2

Interview Participant Details

Name	Country	Participant Group	Reason for Entering Deathcare Work
Anonymous	UK	Standard	Started as hearse driver/pallbearer, enjoyed helping people
David Billington	UK	Green	Was in care work, joined innovative deathcare team providing holistic, eco-friendly options
Edward Kosmos	US	Green	Negative experiences with industry inspired the founding of own firm dedicated to transparency and diversity
Elizabeth Fournier	US	Green	Early childhood experiences with death inspired personal calling
Henry D. Johnston	US	Standard	Inspired by deathcare provided to Grandmother, background in retail management brings business awareness
Kerry Aldridge	UK	Green	Was in palliative health care, wanted to provide more emotionally aware deathcare options for patients
Ngaio Davis	Canada	Green	Personal calling
Nicole Heywood	US	Standard	Personal calling
Sarah Sunnucks	Canada	Green	Started as funeral home hostess, enjoyed helping people

4.1.2 Cultural Values

Green practitioners especially were advocates for more openness and transparency, both within the industry and about death and dying in general. Sarah Sunnucks spoke about how “as a culture we’re just not there, to talk about things”, she still witnesses “a lot of superstition about death”. In her experience, instead of openly exploring options and their implications, deathcare decisions are often limited by “tunnel vision”, with people quickly picking one of two options “instead of just talking”. She went on to add,

A big part of the death industry is, you know, if you hide it, if it’s a secret, if you’re not allowed to talk about it, then it becomes this huge issue down the road that “we just don’t talk about that”. “We don’t do that” or “we don’t see someone after death”. Why?

Elizabeth Fournier spoke about the transactional convenience prioritized with some dispositions: “we’re talking cremation where people want to email or fax documents, they want to pay with a credit card, they want to maybe pick up their ashes, maybe [not]”.

Two interviewees with prior experience in caring work noted how social and cultural integration of deathcare with healthcare could create a stronger “continuity of care”. Particularly in countries with public healthcare, the transition to private deathcare can be jarring, as Kerry Aldridge pointed out, “why is there this kind of standard of care up until the point of death, and then the care of that person is completely handed over to the industry?” To this end, David Billington’s funeral home is explicitly trying to foster better “pathway[s] between health and social care professionals and ourselves. So then, hopefully, all of the families that are being affected by grief and bereavement [would] feel better supported throughout the process”.

4.1.3 The Importance of Meaningful Ceremony

The role of ritual and ceremony in relieving grief was emphasized by all practitioners. Henry D. Johnston spoke about the therapeutic value he’s witnessed when communities gather around the bereaved, a healing he finds lacking in disposition done with no performance of ceremony:

How are we helping a family cope, heal and move forward? Direct cremation doesn’t do that for people...A huge disservice that this profession has tried to sell to the public is: easy, easy, easy. Death is not easy.... Do you want to have one funeral, or do you want to have 300 funerals? Because if we do a direct cremation and we don’t have a funeral, every time you bump into somebody in the grocery store, the post office, church, you name it, you’re going to have to relive this condolence giving over and over and over again.

However, practitioners, particularly those engaged with green alternatives, were quick to point out that meaningful ceremonies need not adhere to standard funeral rites. Edward Kosmos, who voiced suspicion of the motivations behind a lot of conventional Western funeral practices, noted “if your loved one liked smoking cigars and having cookouts, great, go have a cookout, pass around cigars to everyone...laugh and remember.... The Funeral Home does not have to profit from someone celebrating their loved one”.

Many interviewees shared thoughts about how choosing the default is not always a meaningful or healing experience for the bereaved. Kerry Aldridge felt driven to create more emotionally intelligent, supportive funerals, after services she had attended had been “horrible, sad, grim experiences”, instead she asks: “why couldn't we create an event, a funeral, a farewell, a ceremony, whatever you want to call it, that children could go to and not be frightened and not be scared? And adults actually as well!”.

4.2 Ecological Impact

Perspectives about the ecological impacts of conventional practice were namely that burial takes up land resources and has by-products that leach into soil and groundwater, and that cremation produces harmful emissions. The use of large quantities of single-use resources at all stages of disposition was also of concern.

Ngaio Davis noted that some of the waste in deathcare is unavoidable, for health and safety reasons, but that “there are a lot of choices that we haven't tried to make as well”. For example, her funeral home prioritizes using caskets produced sustainably within Canada, which is already she said “a very big step in a different direction” from conventional offerings.

The industry’s lack of transparency can hamper accountability or client awareness of alternatives. Yet as Sarah Sunnucks pointed out, a topic such as the emissions produced by cremation can be a highly sensitive subject to discuss while disposition decisions are being made. “How do you educate [on something] you've never watched, it's behind closed doors.... It's the same as embalming. [Families don't] really know what embalming is because it's done behind closed doors”.

Three interviewees mentioned that the greenest method of disposition would be a home-funeral where the body is bathed and prepared at home by family or community volunteers, followed by a natural burial. If the grave was dug on family-owned land, interviewees also noted this would be the most cost-effective method, Edward Kosmos estimates such an affair would cost “about 40

bucks, maybe 100 bucks if you gotta buy new shovels”. Elizabeth Fournier came to a similar estimate (“I mean, what are you paying for? Maybe some beer and pizza?”) but notes that home-funerals are an unfamiliar option for most Western people, and that many do not have access to appropriate private land for burial.

4.2.1 Greenwashing

As with any market-driven industry, deathcare is susceptible to greenwashing. As discussed earlier, terms such as ‘natural’ are infamously nebulous and can be used to assuage consumer guilt without truly providing sustainability. In Edward Kosmos’ opinion, “green is just an advertising slogan”. He went on to point out that natural burials still often involve fossil-fueled transportation of the deceased and guests, the mechanical digging of the grave and an (often more expensive) imported casket.

Elizabeth Fournier is also wary of companies using the guise of green for quick financial gain:

Some [vendors] have their heart in the right place, and other conversations I can tell, they're looking at it like the hot new ticket to make money. This is deathcare, you're dealing with families who've lost their buddy, you're dealing with human bodies. All of that matters. You're not selling shoes... I bristle at the idea of somebody deciding this is just going to be a cool way to make cash.

4.3 The Future

With regards to the future of Western deathcare, participants expressed a range of views, though they were allied in the anticipation that cremation would continue to be the dominant choice. The advantages and viability of alkaline hydrolysis and NOR were contested, with green practitioners predictably more hopeful of their potential. Finally, participants reflected on the changes provoked by COVID-19, in addition to the impact of aging Baby Boomers and shifting gender dynamics within deathcare.

4.3.1 The Continued Rise of Cremation

Cremation’s current and predicted dominance in the industry was mainly attributed to its lower cost and relative convenience to an increasingly less traditional, more mobile customer base. Nicole Heywood has witnessed a huge shift towards cremation in the 17 years she’s been in the industry. She attributes this mostly to cost incentives and her observation that “the older

generations are more traditional, and as they're passing away, you're going to see less and less of that, and cremation will be the future".

Interviewees across the US and Canada talked about how ties to family plots are fraying; it is no longer assured that generations will die in geographical proximity and be buried in the same cemetery. In the UK, heightening space constraints were noted as an additional reason for choosing cremation.

4.3.2 Benefits and Barriers to Alternatives

Ngaio Davis is an advocate for alkaline hydrolysis to be legalized in her Province. As she puts it, the symbolic and logistical similarities to conventional cremation are an advantage:

That's why I'm so desperate to get aquamation made legal. Because we've got such a high population of people choosing cremation. It seems to me just to make sense, instead of trying to convert all of those people who are choosing cremation to burial and green burial, they just could have a cleaner form of cremation.

Noted barriers to mainstreaming alkaline hydrolysis included societal discomfort with the process, as well as lack of industry incentive. David Billington highlighted how, though he has no concerns, flushing the resulting fluid back into gray water systems may lead to public anxiety about what might "seep into...drinking water", despite multiple independent studies concluding that the effluent is safe and suitable for treatment and recycling (Robinson, 2021). Sarah Sunnucks noted how with alkaline hydrolysis "you can only put organic materials with the body into that chamber", thereby omitting the need for a casket, the major source of revenue for funeral homes. As she noted, "their giant markup sales are going to totally drop off".

For many, the cultural and legislative hurdles for NOR to overcome seemed more daunting than alkaline hydrolysis, though its transformative potential was also seen as higher. Henry D. Johnston saw NOR as a niche choice for a very particular audience, "it's not like somebody who wanted to have a traditional funeral, open casket, burial at the cemetery- those types of people are not jumping all the way over to the composting route". After touring the mortuary services facility that houses NOR's most publicized iteration, Recompose, in Washington state, he was critical of the building's ecological credentials: "they have giant refrigeration units they're running 24/7 with multiple compressors and all sorts of stuff, that's not green! ...it's fake greenery, let me put it that way...It makes people feel better about being green".

Ngaio Davis was inspired by the physical and philosophical potential of the practice after hearing from colleagues running a different NOR facility in Washington that takes 60 days to transform a body into soil. At that facility they saw the bereaved “come into their grief” in a new, embodied way via a near daily vigil of sitting by the pod of their loved one, thereby “tak[ing] this journey with the deceased”. As the resulting amount of soil is substantial, employees had expected families to take home only a token amount, but instead “most people were renting pickups... pulling up and just saying: ‘No! Put it all in, we want all of it’”. Overall, her colleagues had “been blown away with the connection that people are having to that whole process”.

Finally, a standard practitioner from the UK noted that cultural discomfort with novel forms of disposition is nothing new. Cremation faced similar hurdles “going back to the turn of the century... people said, “That’s terrible!” The church, you know, everybody was up in arms”.

4.3.3 COVID-19

All practitioners spoke about the difficulty of serving families well during the first two years of the ongoing COVID-19 pandemic. Restrictions on social gatherings that limited funeral attendee numbers, or prohibited them all together, were devastating to families who would otherwise have had large services. Attendee restrictions meant that, at certain times, not even all a deceased’s children could attend a funeral, and such rules were excruciating to enforce. At the same time, COVID-19 forced new, more intimate, forms of ceremony, which some bereaved found beneficial.

Interviewees spoke about the level of fear and uncertainty that accompanied the start of the pandemic:

Everything that I was sort of working towards, proposing these creative funerals and families having more control and being more involved, we just couldn't do any of that at the height of the pandemic, with the restrictions in place. And in all honesty, I didn't dare get it wrong. I didn't dare put anybody at risk... We didn't know how to protect ourselves, protect each other. - Kerry Aldridge

A few interviewees shared positive stories about how restrictions necessitated bereaved individuals find new ways of memorializing their loved ones. One member of a large family told Ngaio Davis that the mandated smaller ceremony allowed her “to be more honest in [her] grief...[she] don't have to be worrying about everybody else or what [she] look[ed] like or what [she was] doing”.

There was also the perspective of COVID having shaken up the industry, in perhaps long-lasting ways, with mourners expected to continue to see value in doing things differently:

I think that the big change for families [was the conclusion that]: "I don't have to do a service in the Funeral Home. We can do something later. We can do cremation now, and then in a year we'll do a service on our own somewhere". I really think it stole opportunities from the Funeral Home to sell things and I think it was very beneficial for the family. I think it almost changed the mindset. - Edward Kosmos

Interviewees also noted how online streaming of funeral services became common practice, which allowed for a greatly expanded number of attendees. This also provided a less-carbon intensive way for distant family members and friends to witness the ceremony and offer their condolences without long-distance travel.

4.3.4 Societal Shifts

Finally, when asked about the future of the funeral industry, practitioners noted societal factors that have potential to bring widespread change. Namely: the demographic of the people currently or soon to be planning funerals, and the people entering deathcare work.

Elizabeth Fournier noted how members of the Baby Boomer generation “don't necessarily follow a traditional religion, don't necessarily have a family plot, don't necessarily see the value in spending money on [extravagant funerals]”. She also noted the surge of women entering the mortuary field, replacing older men who previously dominated the industry. She went on to note how women have historic ties to deathcare that are now being renewed:

Before there were licenses of funeral directors and funeral homes, it was the women who were the layers of the dead. It was women who did the washing and the bathing and took care of that in the community. That was our job. That just got trumped because embalming came along and that was something to teach, and then that became school. And then that became boys who went to school and became the morticians. So, we're kind of getting back to the basics, it's kind of coming full circle.

4.4 Pathways to Adaptation

When asked about the mechanisms of change within the time scope of the next decade, practitioners highlighted many different components.

As with so many industries where sustainable alternatives are still niche, the daily work of deathcare is grinding and can leave practitioners sapped of energy to innovate or educate. Sarah Sunnucks notes, “funeral directors have a lot of compassion fatigue, day in, day out, hearing these stories”. One coping mechanism, she goes on to explain is “the cookie cutter, if I come in and I know my day looks like this, or like that, then I can plan my emotions accordingly”. Thus, in her experience, even the most innovative practitioner may find their drive to support alternatives exhausted: “when you’re compassion fatigued, you don’t have the energy to think outside the box, you just can’t”.

For David Billington, desired change involves a shift in “the funeral director’s role”, a recognition that “essentially, we are event planners”, albeit for uniquely emotionally significant occasions, and renewed emphasis being placed on being “a conduit of whatever is going to be meaningful for families”.

The bereaved hold purchasing power, and thus many practitioners saw the greatest adaptation potential coming from the public:

I already see a movement of radical change happening in deathcare, in our area of the world. If I’m hesitating about the 10-year thing, it’s because it seems that funeral service is so hard to move, it moves so slowly. However, if the public, and therefore its customers, are wanting something that [the funeral industry is] not offering, they’re going to find a way to get it.... it’s just a matter of time before more conventional Funeral Homes wake up and see that they’re going to have to make some big changes. I definitely think that there are huge shifts coming. - Ngaio Davis

However, some practitioners doubted the extent to which ecological issues were top-of-mind to members of the public currently planning most funerals. As David Billington notes, “I think it may take a couple of decades, for the generation that is actually doing all of the protests and really pushing things forward, to actually get to the point where they are arranging funerals”. Climate change specifically was also not yet top-of-mind for interviewees, when asked if they were adapting their business in response to or in anticipation of climate impacts, practitioners said no, though some had been financially motivated to switch to hybrid vehicles to save on fuel costs.

Henry D. Johnston anticipates a slow rate of adaptation: “I don't know that there's gonna be what we call a Blockbuster to Netflix moment in deathcare, at least not in the next 10 years...we might see it in the next 20. I think there is going to be a shift”.

Ultimately, consumers can only choose options available to them, so legal advocacy to expand access to sustainable alternatives is pivotal. Ngaio Davis notes that natural burial may be the only ecological option available for many communities, “but there are a lot of people who don't want to be buried, so there have to be other green options”.

5. Discussion

The perspectives of the interviewees added nuance and narrative complexity to the previously reviewed academic literature. How the research results correspond to findings in the literature, as well as their wider implications, will now be discussed in greater detail.

5.1 Cultural Values

Interviewees spoke about deathcare work being sequestered from the rest of public life, and about the societal perception of secrecy and a set-apart-ness of their work, a phenomenon some interviewees are actively working to combat. Research suggests that the lack of transparency between the funeral industry and the rest of society may reflect (and further perpetuate) the lack of transparency within Western culture on issues surrounding death and dying (Harris, 2007; Kelly, 2015). Medical advances, in addition to the establishment of the funeral profession in the last 150 years, have changed deathbed rituals and dismantled the average person's ‘literacy’ of death. As hospice physician Kathryn Mannix writes:

The death rate remains 100 percent...what is different is that we have lost the familiarity we once had...we have lost the vocabulary and etiquette that served us so well in past times when death was acknowledged to be inevitable (2017, p. 2)

Having open, honest conversations about death and disposition options is something all interviewees supported. There are societal efforts to oust some of the fear and mystery that surrounds death, such as the hospice movement and the foundation of local death cafes (Doughty, 2018; Haneman, 2020). However, recent research from the UK also found declining rates of final wishes discussions and funeral pre-planning (SunLife, 2022). Interviewees spoke about the potential emotional inadequacies of standard-issue funeral services and modes of disposition, echoing academic findings that Western death rituals exemplify “commodification, detachment, denial of death, and fear of disposal and natural processes of decomposition” (Feagan, 2007, p.

162). Growing dissatisfaction with the options on offer is spurring change in customer requests, albeit slowly, in much the same way that dissatisfaction with over-medicalized birthing revived the popularity of midwives and birth doulas (MacMurray & Futrell, 2021).

The importance of meaningful ceremony was also repeatedly mentioned by interviewees, reflecting scholarship on the healing power of not only formal, communal ceremony, but embodied, personal ceremony as well, something that Western deathcare can sometimes lack (Lynch, 2004; Mathew, 2021). This may be an area in which Western societies can learn from the wisdom of other cultures on how to move through grief- a journey that never truly ends (Jibilian, 2020).

5.2 Ecological Impact

Industry interviewee experiences supplemented the growing academic body of work demonstrating ecological consequences of conventional burial and cremation, though defining the exact extent of harm is challenging (Keijzer & Kok, 2011; Lee et al., 2022). As consumer demand for sustainable offerings grows, the potential for greenwashing is inevitable: sellers are profit driven to advertise their products however they sell best, regardless of actual environmental impact. In retrospect, the classification criteria for this project may itself have been subject to greenwashing, as practitioners categorized as 'green' due to their website's environmentally friendly claims may have been financially motivated to promote exaggerated 'green' options. Misinformation and inflated claims could be mediated in part via centralized certification bodies such as the Green Burial Council, who have developed ecological vetting criteria for products, funeral homes, and natural burial grounds (MacMurray & Futrell, 2021). There is also a growing number of industry groups, such as the UK's Association of Green Funeral Directors or Canada's Death Doula Network of B.C.; bound by a code of conduct, these groups encourage honest practice, raise awareness, and provide education for their members and the public.

A home-funeral followed by a natural burial was mentioned by a third of interviewees as the most ecological option, in addition to being the most affordable option if the body is buried on family-owned land. Keeping and preparing a body at home ahead of disposition is an unfamiliar, though entirely legal alternative within the UK, US and Canada, although some areas require a funeral director to perform certain steps of the process (e.g., signing the death certificate, transporting the body)(Webster, 2018). Home-funeral advocacy and education is mounting, with proponents championing it as a transformative, intimate, and empowering choice that returns agency and power to the bereaved (Webster, 2018; Kelly, 2012).

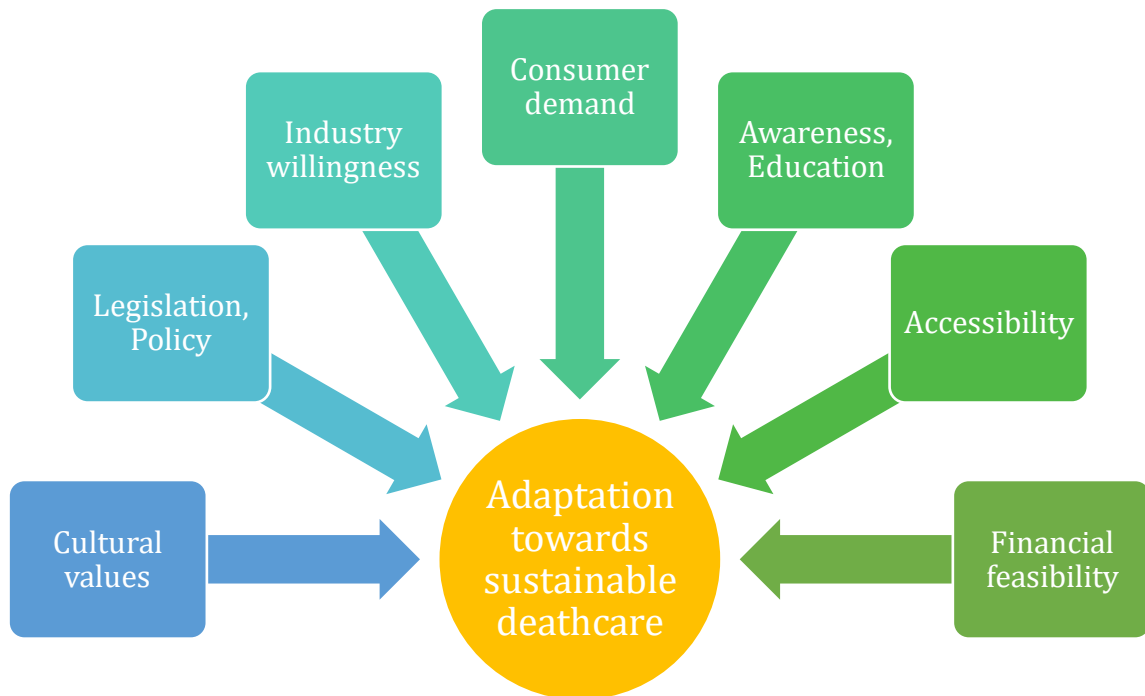
On a total global scale, conventional deathcare contributes relatively little to the destruction of ecosystems and the release of carbon (Keijzer, 2017). However, combating climate change requires making changes in all arenas of life. Furthermore, deathcare choices reflect cultural understandings of the relationship between humans and the non-human world and can contribute to building momentum for larger societal change. As Barnett notes, “living ecologically.... must also come to mean dying ecologically” (2018, p. 23). One’s final decision on earth can echo, with deep symbolism and power, priorities held in life and hopes for the future. Finally, the escalating global crises of soil depletion and erosion could be somewhat abated via disposition methods that promote the unencumbered decomposition of human bodies (Amundson et al., 2015; Kiley, 2015).

5.3 Sustainable Ways Forward

Long-term adaptation in deathcare practice will necessitate change on many levels of society. As previously discussed, interviewees noted how cultural values such as the denial and sequestration of death will need to shift towards more open, integrated ways of conversing about and caring for the dead. In support of this, there is an increasing amount of advocacy and scholarship concerning the ways increased transparency around death can benefit the bereaved in processing their grief (Kelly, 2012; McDuff, 2022; Sanders, 2019). Green practice interviewees noted the need for an expansion of legally available disposition options, a stance also recently argued in several law journals (e.g., Alfus, 2020; Haneman, 2020). Interviewees noted how the professionalization of death is unlikely to change, and thus the mainstreaming of alternatives will need to involve the cooperation of the funeral industry, a shift that is expected to come via a mix of internal interest in sustainable options and external pressure. As the holders of purchasing power, those who plan their own funerals or the recently bereaved may well be the strongest force for change. However, as noted by interviewees, consumers must be informed of their options and alternatives must be accessible, both physically and financially, for sustainable adaptation to be viable. The inputs for adaptation towards sustainable deathcare, as emphasised by interviewees, are summarized in Figure 2 below.

Figure 2

Pathways to Sustainability, as Highlighted by Industry Interviews



Interviewees unanimously expected cremation to continue to dominate the Western deathcare market, and industry research groups agree (NFDA, 2021). Therefore, to reduce emissions, existing crematoriums could be retrofitted with air filters and more efficient furnaces, in addition to the expansion of electric crematoriums (Copeland, 2020; SLCC, 2021).

Alkaline hydrolysis and NOR are compelling alternatives, but their implementation still involves energy-consuming machinery. Both forms of disposition face legislative and cultural hurdles before they could become widely available options. Implementation at a scale that rivals conventional practices might also bring new issues, such as water use and treatment with alkaline hydrolysis and resulting soil management with NOR, though large-scale administration of either end-product does not seem insurmountable (Robinson, 2021).

While mitigating the ecological impact of death is a necessary cause, one must remain mindful of which groups have access to such options and who potentially stands to profit under the guise of environmental consumer choices. With an expected swell of Baby Boomer deaths and funeral poverty an ever more common issue, environmental and social justice are elemental to ethical system change (Cummins, 2021; Heller, 2019). There is a long history of racist, sexist policies and disregard for marginalized bodies to keep in mind when charting a course for sustainable death

practices (Krupar, 2018). Unequal lives lead to unequal deaths, and the impacts of power disparities echo even into the afterlife. For example, racialized groups, women, Indigenous peoples, prisoners, and the poor have all been historically denied access to dignified burial in cemeteries (Ibid.). Additionally, viewing the body as a resource, be it through organ donation, whole-body use by science or the reprocessing of excess crematorium heat, stems from a legacy of medical abuse and exploitation of oppressed peoples (Ibid.). This history is relevant in considering the use of alkaline hydrolysis effluent or NOR produced soil as fertilizer. Indeed, promoting the 'labour' of dead bodies can perpetuate exploitative neoliberal values of endless productivity and maximal profit. As mentioned earlier in this project, a critical ecofeminist or queer ecology lens may be helpful when considering deathcare adaptations in order to keep just and balanced relations between humans and the non-human world as a priority.

During the first two years of the COVID-19 pandemic, deathcare workers were on the front lines of contagion fears, ever shifting restrictions, and the dismantling of conventional rituals of collective grief and mourning. Some interviewees witnessed families deriving benefit from smaller, more intimate ceremonies, or memorials held outside the traditional setting of a church or a funeral home. Emerging research supports this, Woodthorpe et al. (2021) found that during the height of pandemic restrictions in the UK, direct cremation followed by a private ceremony allowed families more control and a commemorative event that still felt meaningful and consistent with their departed's values. These findings are echoed by other pandemic death scholarship such as Lowe et al., (2020) that challenge the idea that a standard-issue funeral service is the only way for a family to find closure and psycho-social support from their community. Interviewees mentioned how online streaming of funeral services became a popular option during pandemic restrictions, an example of technological inclusivity which allows the bereaved to be supported by a wider network of friends and families, while also providing the ecological benefit of limiting long-distance travel, advantages also mentioned in the literature (NFDA, 2021; SunLife, 2022). At the same time, scholars have noted that COVID-delayed mourning rituals may lead to a surge in extended, complicated grief, which they suggest could be countered by increasing societal death literacy and extended access to mental health support (Jordan et al., 2022). As highlighted by an interviewee, burnout and compassion fatigue amongst funeral practitioners are also concerns, especially with the additional strain of the ongoing pandemic. Greater access to and normalization of mental health support for practitioners may help alleviate some of the emotional load inherent to the profession.

The entry of more women into the field was also highlighted as a force for change in the present research. Activists and scholars similarly see women as a disrupting force in deathcare, as Chavez writes: "women have fought for control over their bodies for centuries, in life and now in death... the future of death is a feminist one" (2019, paras. 8, 27). As mentioned by interviewees,

throughout history death work was done almost exclusively by women, with community ‘shrouding women’ passing knowledge down generation to generation (Fletcher, 2018). The professionalization of deathcare largely excluded women for more than a century, but women are increasingly reclaiming their role and leading the charge to make the field more transparent, ecological and holistic (Doughty, 2018; Kelly, 2012; MacMurray & Futrell, 2021).

Ultimately, how deathcare practices may change in the coming decades is a complex question with many contributing factors. Though conventional burial and cremation seem utterly entrenched, deathcare has changed radically in short periods before, and some interviewees and researchers believe the field is again posed for a sea-change (Haneman, 2020; Robinson, 2021; Sanders, 2020).

6. Conclusion

Using background literature and industry interviews, this project has traced how current practices of Western burial and cremation became mainstream and explored a few of the cultural narratives that inform and support such practices. The diverse ecological consequences of these disposal methods, in addition to some emerging alternatives, were investigated. Finally, more sustainable adaptations and predictions for the next decade were considered, which involved discussing multiple necessary components to change. Initial perspectives on the impacts of COVID-19 were also collected, though with the pandemic still ongoing, enduring effects will not be known for some time. The present research expanded the body of knowledge on Western deathcare sustainability through the invaluable perspective of funeral directors, a previously underrepresented insider group.

There is a vast horizon of further research into deathcare practices yet to be investigated. From psycho-social components of ceremony, attitudes and values to health and ecological fallout. Of particular interest to sustainability would be more research on the climate impacts of different disposition methods. A recent paper by Lee et al., (2022) extensively modeled how market penetration by cryomation could decrease carbon emissions as compared to cremation. However, with the legal and practical issues surrounding freeze-drying bodies, it seems unlikely that cryomation will be a viable disposition option in the near future. Impact modeling for natural burial, alkaline hydrolysis and NOR would perhaps be more useful. Indeed, NOR is still such a new option, an overarching study of legislative and cultural barriers to its mainstream adoption, like Robinson (2021) recently conducted for alkaline hydrolysis, would be beneficial for academics and advocates. The academic field of death studies is also dominated by Westerners, particularly male American and British researchers, thus the inclusion of a more diverse chorus of voices is vital to providing deeper, richer understanding.

Finally, though it has been the focus for this project, altering the mode of disposition is not the only way to decrease the ecological impacts of deathcare. For example, future research could consider the implications of reusing or recycling items that are currently considered single-use. Elaborate caskets are occasionally rented just for viewings, with the body placed in a hidden inner lining. If this practice became more widespread and was also used for ceremonies ending in interment, it would save the burning or burial of immense amounts of wood, metal, plastic, and fabric that are only seen by the living for a few hours. Likewise, the reuse of graves after a period is commonplace in much of the world, yet still highly taboo in the UK, the US and Canada (McManus, 2015; The Associated Press, 2009; Thornton, 2019).

The journey to concluding one's life is profound, and deathcare choices cannot be reduced to a simple utilitarian calculation of environmental impacts. Yet, honestly, and directly considering what will happen to our bodies after we die may lead to a more intentional and meaningful end. Likewise, for the bereaved, ceremonies that involve more contact with the departed, undaunted by early signs of bodily decomposition, might offer more healing and embodied conduits for grief than stumbling through denial and dissociation.

Death rituals reflect the values and priorities of the living. By exploring alternatives and challenging Western culture's dominant narratives surrounding death, there is a rousing opportunity to renegotiate our relationship to the earth via the deep symbolism and physical realities inherent to the dead body. Current processes are distant, commercialized, and fixated on the sterile, inert passage of human bodies into sealed boxes or ash. Thereby, we "kill the body again", denying its potential for ongoing ecological contributions (Stewart, 2018, p. 300). Embracing the body's decay and reintegration into natural cycles of the earth could have radical implications for society. Not only could this massively decrease the ecological impact of Western dying, but it could also underscore a more conscious, integrated way of living. Adapting death choices to be climate-smart and minimally impactful is an important component of the tectonic shifts needed to survive humanity's climate catastrophe.

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Appendices

Appendix 1. Interview Guide

1. Could you please describe how you came to be involved in deathcare?
2. What guides your deathcare practice – values, ethos, principles?
3. In your opinion, what types of factors are important when people make deathcare choices for themselves or loved ones?
4. What are some ways you see current practices of burial and cremation impacting the environment?
5. What are some ways, in your view, that negative environmental impacts could be decreased?

6a. *For standard practitioners:*

Do you have people inquiring about alternatives to current burial and cremation?

If yes:

What types of alternatives have you noticed are the most popular?

Would you say you have a little, a medium amount or a lot of interest?

Has the level of interest changed in the last 10 years?

Has the level of interest changed since COVID-19?

What are some of the reasons, from your memory, for interest in alternatives?

If no:

In your opinion, why don't people ask about alternatives?

6b. *For green practitioners:*

What types of alternatives have you noticed are the most popular?

Have you noticed a change in the amount of interest in alternatives to mainstream burial or cremation in the last 10 years?

Would you say the change has been small, medium or large in scale?

Has the level of interest changed since COVID-19?

What are some of the reasons, from your memory, for interest in alternatives?

7. Do you think deathcare practices will change on a large scale in the next 10 years?

If yes:

Why?

In what ways?

If no:

Why not?

8. What alternative(s) to current burial and cremation do you consider most likely to gain in popularity in the next 10 years?

9. With regards to COVID-19: Aside from having to be socially distanced during a traditional ceremony or not being able to have a ceremony at all- have you noticed changes in family priorities or requests since the start of the pandemic?

If yes:

Can you elaborate on what type of changes?

Do you think these changes will persist?

10. I'm curious to know how an awareness of climate change impacts might affect your practice? Are you doing anything differently to adapt or respond to change? If yes, what? If no, why?

Any final clarification questions

11. Finally, any questions, or other thoughts you'd like to add?

Appendix 2. Consent Form

Research title: A Greener Way to Go: Climate Adaptation Imperatives for Western Deathcare.

Description: This research project aims to trace the history, supporting cultural narratives and climate consequences of deathcare in the U.K., U.S., and Canada and explore the potential for green alternatives.

Primary Researcher: Amandine Clairo (am7617cl-s@student.lu.se or amandine.clairo@gmail.com)

Institute: Lund University, Sweden

Supervisor: Professor Mo Hamza (mo.hamza@risk.lth.se)

By signing this form, I understand that:

- I may withdraw from the interview at any time or refrain from answering any question without consequence
- I will not receive any payment for participation
- For confidentiality, identifying details will be kept separate from interview transcripts
- Access to my own interview recording or transcript will be provided to me, if requested
- Only the primary researcher and her supervisor will have access to full interview transcripts
- I am free to contact the primary researcher and/or her supervisor at any time to seek clarification or further information

I agree to (please tick only what you consent to)

<input type="checkbox"/>	Audio & visual recording
<input type="checkbox"/>	Be quoted using my name
<input type="checkbox"/>	Be quoted anonymously
<input type="checkbox"/>	Be quoted only if I approve quotations in their final context
<input type="checkbox"/>	Not be quoted at all

Data Security:

Interview details, consent forms and recordings will be stored on a password protected, local hard drive, disconnected from cloud services. Anonymous transcription may be done using Microsoft Office or Otter.ai, which both meet industry standards of data encryption and EU-U.S. Privacy Shield requirements.

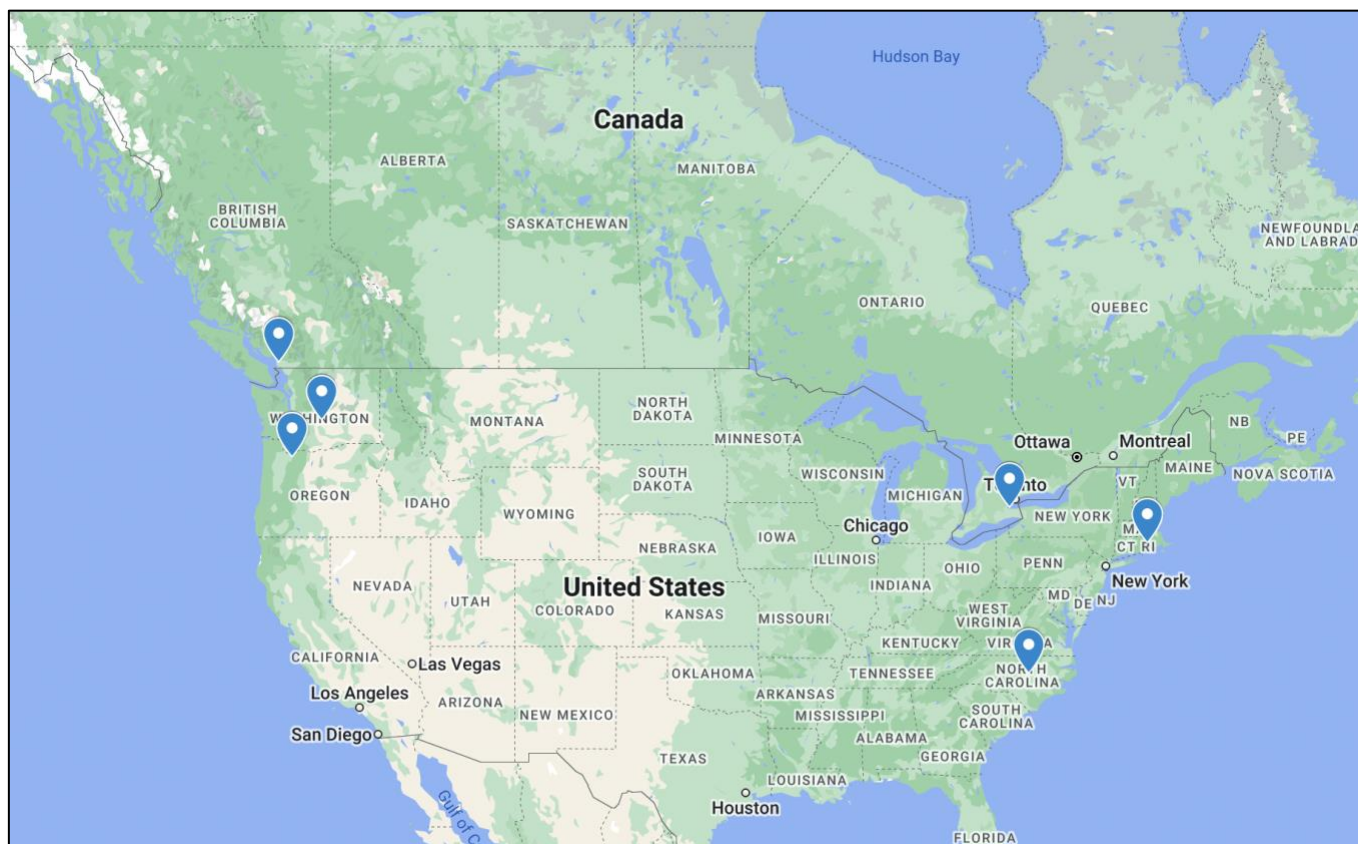
Name:

Signature:

Date (D/M/Y):

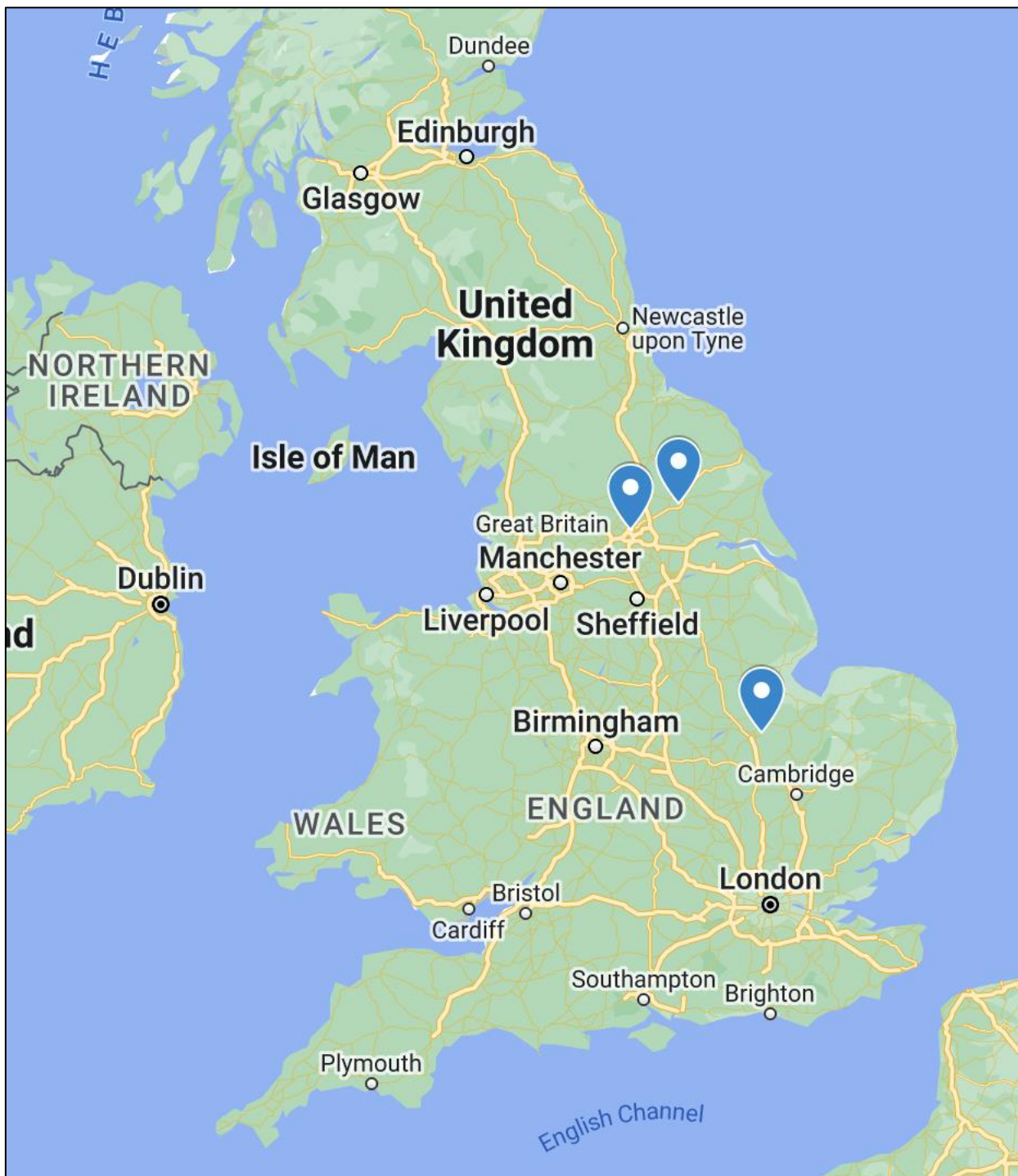
Appendix 3. Interviewee Maps

Figure 3
Geographical Location of Interviewees, US and Canada



Map data ©2022 GeoBasis-DE/BKG (©2009), Google, Inst. Geogr. Nacional

Figure 4
Geographical Location of Interviewees, UK



Map data ©2022 GeoBasis-DE/BKG (©2009), Google, Inst. Geogr. Nacional

Appendix 4. Thematic Map

Figure 5

Created Themes from Data Analysis, with their Associate Links to Codes

