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Enlivening Spaces for the Dead: The Relevance of Cemeteries in the 21st Century

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No city is more inclined than Eusapia to enjoy life and flee care. And to make the leap from life to death less abrupt, the inhabitants have constructed an identical copy of their city, underground. All corpses, dried in such a way that the skeleton remains sheathed in yellow skin, are carried down there, to continue their former activities. And, of these activities, it is their carefree moments that take first place: most of the corpses are seated around laden tables, or placed in dancing positions, or made to play little trumpets. But all the trades and professions of the living Eusapia are also at work below ground, or at least those that the living performed with more contentment than irritation: the clockmaker, amid all the stopped clocks of his shop, places his parchment ear against an out-of-tune grandfather's clock; a barber, with dry brush, lathers the cheekbones of an actor learning his role, studying the script with hollow sockets; a girl with a laughing skull milks the carcass of a heifer.

To be sure, many of the living want a fate after death different from their lot in life: the necropolis is crowded with big-game hunters, mezzosopranos, bankers, violinists, duchesses, courtesans, generals—more than the living city ever contained.

Italo Calvino, Invisible Cities
Figure 1: A cemetery in Florence overlooking the landscape. Photo by author.
I. Introduction

I was five years old when my mother told me that my grandfather, her father, had died of cancer. My mother told me that “Vovô morreu.” While I understood the Portuguese to mean he had died, but I was entirely incapable of processing his death. I had only seen him the few times I visited my mom’s family in Brazil, and my memories of him remain the lofty view out of a small apartment window, folding couches, freckles, and the taste of banana yoghurt. Days after his death, one of my markers ran out of ink. I was devastated as I threw the plastic shell into the trash can, and then looked up to find my mother’s face in a clear display of disgust. How could I cry so much over something as trivial as a marker when I had barely shed a tear for my own grandfather? It made sense to me: Brazil was far and trips were infrequent, and my grandmother and grandfather lived separately. Meanwhile, my marker created lines and lines create happiness.

I grew older, and I began to find value in visiting his grave with my aunt and mother — a pilgrimage to the edges of the city of São Paulo. At the flower shop, we would stop and buy chrysanthemums, which we would water and leave at the site of his ashes which consisted of a flat, rectangular sheet of concrete with a small bronze-plated plaque with his name and birth and death dates on the top right and a large hole for flowers on the left. Above the hole is a small number 45. Even with the economical inscription, I began to feel a connection to a man I barely knew. Around me, stone walking paths oscillated over the hills, flanked on either side by identical sheets of bronze and concrete. Some of the sheets had multiple plaques; families together, even in death. Trunks of trees grew up from the ground until they exploded into canopies of limbs and different shades of green. Plants grew dense between the graves, although
I could see where they had been cut so as not to grow over the gravestones. Life makes space for the dead, and nonetheless continues.

Figure 2: The cemetery of my grandfather’s ashes in São Paulo, Brazil. Photo by author.

Humans demarcate pieces of land for the dead to inhabit so that the living can memorialize them. Even if their bodies no longer exist as matter, their memories will take up physical space, whether the size of a plaque or a monument. People embalm the dead so that their bodies will decompose more slowly. They use stones as grave markers, which erode more slowly than bodies decompose and memories fade. Through cemeteries, people recognize and attempt to combat the existentialism caused by being confronted with the fleeting nature of life. Cemeteries are spaces for reflection, upon a person’s deceased friends and family as well as the lost lives of strangers whose only remaining identifiers are names, birth and death dates, and the
occasional epitaph. They provide more than just a space to dispose of bodies without affecting public sanitation. They provide emotional release for mourners. They create a transition into post-life in a movement from the surface of the earth to soil or smoke or eternal damnation, a kind of sublimation from matter into the divine. The experience of a beautifully made cemetery is ineffable, a balance between landscape and structure that creates a space to reflect on mortality and the beauty of nature (see Figure 1 for an example of a particularly beautiful Florentine cemetery).

Well designed cemeteries have now transformed into sanctuaries for quiet and slowness in this period of global unrest. Industrialization and digitization are catalyzing societal and ecological change at a rate that is unprecedented in human history. We are experiencing the scarcity of natural materials we have commodified and assumed were in infinite supply, such as land and water, especially as the population booms and must be housed and fed (Gómez-Baggethun and Ruiz-Pérez, 2011). As cemeteries are not economically productive sites, we may need to find justifications for their existence and continued construction. Why use water, energy, and developable land on a space for people too dead to enjoy it? Thankfully, the idea that everything should be economically productive has come second to the tension between the fragility of human life and our desire for permanence. But as the population soars, ages, and dies, the need for space to process and house the dead will increase.

With approximately 7.7 billion individuals living now, we are going to have to make new spaces for the dead if we want to continue remembering them. Landscape is limited and continues to increase in value in order to be commodified and developed. But with

anthropogenic climate change, are cemeteries something upon which labor, materials, and energy should be spent? Certain traditions in burials or in cemetery design extoll a heavy price on the environment, from taking up resources that are vital to other ecosystems to being energy intensive to polluting the local area; so much so that several news articles have been written stating that cemetery practices are unsustainable and must change (Tang, 2019; Plenke, 2016). The harm of continuing current cemetery practices will increase as populations of the dead do, so we must find alternative ways of building the necropoles. Cemeteries are not passive spaces. Different examples of cemetery spaces show the way their use or disuse can be resource intensive and harmful to their local social and ecological environments, particularly within the processes of landscaping, treatment of corpses, and their existence as “dead” space, or space not often used by living humans.

However, I have found examples of other cemeteries that demonstrate the cemetery space’s capacity to benefit its socio-ecological context. Cemeteries have broad, cross cultural and personal spiritual value. They connect the living with the dead, creating an empowering idea of human legacy and grounding us in our own mortalities. Cemeteries can also be spaces that can serve the living of all species. We can use cemeteries as spaces to cultivate the earth and native species. We can use them for healthy outdoor recreation, especially in spaces without as much access to public greenspace, for the building of neighborhood or family communities. Finally, we can also design cemeteries as sites in which to explore new poetic forms of art and architecture.

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These examples are cemeteries that successfully integrated these functions, and I believe we can use them as models to influence future cemetery design and to reprogram existing cemeteries.
II. The Cemetery/Body as Spiritual Site, or a Justification for the Use of Cemeteries

Humans have a long history of spiritualizing death. Cemeteries are often sited on the land of religious institutions. Religions have their specific death rites and philosophies. We visit the dead in search of spiritual advice, sometimes even trying to contact them through séance. Spiritual practice around death is not new or specific to a culture. In fact, hominins from around 100,000 years ago were discovered at the Jebel Qafzeh cave to have been intentionally buried with antlers or sea shells, indicating some sort of social, spiritual rite around death (Hovers, 2009). In a book chapter titled “Landscapes of the dead: the evolution of human mortuary activity from body to place in Palaeolithic Europe”, Paul Pettit states, “From an evolutionary perspective what we do with the dead is surface detail; the real evolutionary value lies in the assumptions which underlie any belief that minds persist and effect social agency beyond physical death”. As Pettit discusses, the establishment of funerary caches and graves as sites for death rites with the early Homo may not imply symbolism or religion, but the development of death rites and sites for the dead “must form an important stage on the road to fully symbolic minds” (Pettit, 2015). The exploration of the relationship between death and site (both body and landscape) informed cultural practices and developed a shared spiritual code within a community. Humans performing funerary rites and constructing grave sites throughout history up to the modern day demonstrates that we still find enough spiritual and social benefit in the processes to spend the time and labor memorializing the dead.

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Beyond the historical, I believe the existence and construction of cemeteries as personal spaces of mourning is sufficient justification for their continued use and development. Most people who have suffered the loss of someone close can confirm the desire to have a space to be with and remember them. And whatever our cultural associations with death are, we want some “thing” to acknowledge that a life was lived, to apply meaning through the tactile to the ephemerality of life. We want spaces to gather and create communities connected by those we have lost. Even among the gravestones of complete strangers, cemetery spaces bring us together in the shared experience of loss.

Tombstones and other death markers provide a physical manifestation of a person or family’s life. Often times, iconographies and text are used to preserve some of the dead’s personalities, beliefs, and actions. Cambridge classicist Mary Beard in the BBC series *Meet the Romans* explores the lives of the non-Patrician Romans through their tombstones in the third episode, “Behind Closed Doors” (Beard, 2012). One quite comical one of a woman named Glyconis (which means sweet) put up by her husband reads, “sweet by name, but even sweeter by nature. She didn’t like to be all proper and austere… she much preferred to be a bit wild… she liked to get a bit drenched in Bacchus [wine]” (Beard, *Meet the Romans*). Glyconis’s husband wanted to preserve her personality and the emotional relationship between them even in death, and therefore set it into stone. Going through a cemetery, even ones without plaques describing how much wine a person liked to drink, I am surrounded by the now-buried personalities of people I will never get to know, and yet onto whom I can project my own experiences, speculating that they too have at one point had been in love or captivated by nature.

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6 “Behind Closed Doors.” *Meet the Romans with Mary Beard*. BBC Two, May 1, 2012
or mildly annoyed at another person. The fantasy of imagining the former lives of the dead is a spiritual experience of universal empathy, similar to riding the subway and realizing that the strangers around you all have their own lives and problems. This empathy creates connections between humans and ultimately allows us to build communities and cultures that carry on across generations.

Even when the bodies of the deceased cannot be identified or found, such as those of soldiers and car accident victims, people create memorials in space to commemorate the dead’s life, like the tomb of the unknown soldier at Arlington National Cemetery or the white, wooden crosses you see driving along Montana highways (Arlington National Cemetery Website, American Legion of Montana Highway). Empathy moves us to understand that an unknown corpse still would be loved and remembered, and therefore the corpse deserves some sort of ritual acknowledgement of the life they lived. Corpseless graves show us that a body’s physical remains are not the only traces left behind when someone dies, but that the memories alone are worthy of a symbol of existence.

The body too has historically been a site for spiritual practice. One of the most famous practices in corpse treatment is the Egyptian process of mummification, in which priests embalmed bodies to dry them out, preserving them from decay. Intentional mummification mimicked what would naturally occur when bodies were placed in the arid, shallow graves of sand, developing the process into an extensive ritual that involved religious spells and the crafting of spiritual vessels. For labor and material to be put into preserving bodies implies the idea of the body as a sacred; in fact, in the Book of the Dead, ritualized mummification was

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described as the mechanism through which the soul could thrive in the afterlife (Taylor, 2010). These ritualized burials were not unique to people; the Egyptian Ministry of Antiquities posted on their Facebook page in November of 2018 about the finding of tombs at Saqqara used during the late period as graves for cats, as well as mummified scarab beetles (Egyptian Ministry of Antiquities Facebook). 

Death practices are a way of symbolically moving the soul from life to death through the body. By performing rites on the body, we impose significance onto it, affirming that the body is worth the materials and time to treat. We use preservation (like embalming) or a state change (like cremation or decomposition) to provide a vessel for the soul to pass through after death, into nothingness or the afterlife or the next life. We then imprint the spirit of the person from the body onto some object or into a space, using these things and sites to represent the person’s life. Death practices create a relationship between body and object as sites for spirit. Religious and spiritual beliefs inform the specific practices around death or give already developed practices meaning. While the drying of bodies developed naturally due to the arid Egyptian climate, ritual mummification became the process through which the soul could pass into the afterlife.

Visiting cemeteries, either to see a specific grave or to wander around the space, is also a reminder of our mortality. Understanding and appreciating death as a part of our human condition is crucial in appreciating life. This is not a new belief; in fact, it is a philosophy central to the 3,000 year old Mexican celebration of Day of the Dead. In an opinion piece for the Los Angeles times, Daniel Hernandez writes, “I’ve found, over the years since I adopted the practice,
that building an ofrenda for a dead soul is a soothing experience. The ritual embodies the essential duality of Mesoamerican cosmology: There is no living without the dead, and no death without the living” (Hernandez, 2019).\textsuperscript{11} Ofrendas are built the physical manifestations of memories that include photographs, favorite foods, objects left behind. Generations later, fragments of people’s personalities are survived in this way. As Hernandez states, “In almost any interpretation, Dia de los Muertos posits a universal truth: The dead need us as much as we need them” (Hernandez, 2019). Similarly, cemeteries create a space to explore our own familial histories, as well as the legacy of human history. Cemeteries force us to operate at a different scale of time— generational instead of individual. The slight wear of tombstones show a slow aging, an extension of our lives to the time it takes for stones to erode that mirrors the extension of our lives in the memories of those who survive us. Cemeteries create a tension between the ephemerality of life and the permanence of the markers we choose to represent life. Examining spaces and objects left behind, whether a tombstone or part of an ofrenda, makes us aware of the possibility of love and of being remembered. They also can make us aware of the atrocities we have committed against each other: Cemeteries and memorials of the victims of human-rights atrocities remind us of the fallibility of the human spirit. Cemeteries provide for us a space to speculate upon our significance and our histories, a space to think and to feel, which I believe is the compelling spiritual justification to continue their existence.

Still, we can build cemeteries that will also be beneficial to the systems outside of our psyches due to the flexibility of function within a cemetery space. In \textit{The Death and Life of Great American Cities}, Jane Jacobs states “the district… must serve more than one primary

function… [which] must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common,” arguing that spaces should serve multiple functions to bring together a wider range of people, creating a space for interactions (Jacobs, 1961). Using Jacobs’ theory on mixed-use space as an ideological framework, I examined how specific cemetery sites incorporated different functions to better serve the communities and land in which they are situated. Jacobs states that “mortuaries, or funeral parlors as we call them in the city, seem to do no harm. Perhaps in vital, diversified city neighborhoods, in the midst of life, the reminder of death is not the pall it may be on waning suburban streets” (Jacobs, 1961). I believe that incorporating mixed-use ideas into cemetery spaces connects the spiritual with the ecological, social, and artistic systems within which we live, allowing us to continue memorializing the dead without burdening resources, labor, or energy or sacrificing space that could be built for the living.

III. The Cemetery as Site for Sustainable Landscaping

Landscape has a profound effect on our emotional state. Humans use and shape landscape to produce certain effects on the psyche. European monarchs had royal gardens planted to display wealth and imperial power, Japanese Zen Buddhists curated rock gardens into specific forms to trigger enlightenment. These shapings do not come without impacts on the environment, however. What we introduce into the Earth and its atmosphere can benefit the native ecologies that host the cemeteries, but it also has the potential to be detrimental to the surrounding landscapes. Here, we interpret Jane Jacobs’ theory beyond human communities. Jacobs, in explaining the purpose of *The Death and Life of Great American Cities*, states that the “ubiquitous principle [of city building] is the need of cities for a most intricate and close-grained diversity of uses that give each other constant mutual support” (Jacobs, 1961).\(^{14}\) I believe that this can be applied to the non-human systems as well. A cemetery whose natural systems are well integrated into the greater natural context within which they exist will be available to more species to inhabit, creating a local biodiversity. This biodiversity makes the area more active for all the species and generally is a good measure for the site’s ecological health, creating new niches for even more life to grow.

Humans have a long history of reshaping landscape. We have physically reshaped landscape for aesthetic ends, but also to use landscape to supply us with food, water, and shelter. We have razed forests for more agricultural space, and through monocultural agriculture practices have left soil depleted of nutrients. We have cleared landscape for buildings and streets, then reintroduced “landscape” through the artificial constructions of lawns and yards and

gardens. We have seen landscape as a provider for us, taking and monetizing resources necessary for its very existence. Our shaping of landscape, especially for agriculture, industry, and transportation, resulted in anthropogenic climate change through the energy and resources these systems require and the pollution they cause. Through anthropogenic climate change, we shape our landscape further. Climates are becoming (or already are) inhospitable to life from rising temperatures and the resulting lack of fresh water; in fact, we are the impetus behind earth’s sixth mass extinction, with a study on vertebrates showing that 32% of the sample of 27,600 species are decreasing in species size and population sizes and ranges (Ceballos, Ehrlich, and Dirzo, 2017).

Melting ice caps are resulting in rising sea levels that will submerge low lying masses of land in water, and without ice caps, the earth’s albedo is reduced. With less sunlight being reflected off of the ice caps, more will be taken in by the atmosphere, amplifying the effects of global warming (NASA, 2019).

Shaping local landscapes can contribute to this overall change in global landscape through unsustainable practices in the removal or addition of life and land such as planting or paving. Cemetery landscaping therefore must be performed within the context of anthropogenic climate change and ensure not to contribute to it, but instead to try and mitigate some of climate change’s causes such as energy consumption and pollution and effects such as species loss. During this period of natural destruction, cemetery landscapes also function symbolically as hope for regrowth after death with the movement of wildlife into spaces for the human dead.

The nature of cemeteries creates the possibility for the environment to thrive. Cemeteries are places of mourning, which is a calm activity, and they often incorporate greenery into their

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landscaping. They are not built to be productive and therefore largely remain undisturbed, often unintentionally providing a place for native species to survive (Löki et al., 2019). They can function as sanctuaries for species that cannot survive within the surrounding built environment, especially in urban spaces that lack green space. Some successful models of ecologically sustainable cemeteries have been developed for centuries in the United Kingdom. Around London, many of the spaces that earned the title of “Local Nature Reserve,” which are “places with wildlife or geological features that are of special interest locally,” are old cemeteries (Natural England, 2019). Landscaping can create a space in which native ecosystems can establish themselves, especially within the built environment that would normally be hostile to their growth.

Conversely, cemetery landscaping can also be a damaging practice to local ecosystems. Cemeteries are subject to invasive species, especially ones that are introduced into the landscape design, as well as other unsustainable landscaping practices such as weeding native species or pesticide use. Native species are often outcompeted by invasive species who consume the same resources without the same mechanisms of population control, reducing the overall biodiversity of the area. Invasive species also often prompt the use of herbicides, which can be toxic to more than just the targeted plants. Agriculture, gardens, and other forms of deliberate landscaping have long been a mechanism for the introduction of invasive species, bringing in foreign species which then colonize the area (Hulme, 2011). Cemeteries can also burden their natural

environments through resource intensive landscaping. The energy and materials necessary for cultivating the landscape have to be sourced from somewhere, and when the species are non-native, oftentimes materials to maintain the landscape have to be imported. In places that are naturally arid, for example, maintaining a field of non-native grasses requires more water than is found in the area, which then requires energy to transport. Native species, on the other hand, have evolved within the area’s climate and therefore are naturally able to survive within the environment (although climate change is making it more difficult). Cemeteries landscaped within the context of their local ecologies not only help preserve species that may be endangered but also require less energy and fewer resources for maintenance.

The London cemeteries designated as Local Nature Reserves, however, use landscaping as a way to cultivate populations of native species that cannot survive within more built areas of the city. By being designated as a Local Nature Reserve, Abney Park has to show commitment to ecological conservation. From the National Parks and Access to the Countryside Act 1949:

“(2) Land is managed for a conservation purpose if it is managed for the purpose of—

(a) providing, under suitable conditions and control, special opportunities for the study of, and research into, matters relating to the fauna and flora of Great Britain and the physical conditions in which they live, and for the study of geological and physiographical features of special interest in the area, or

(b) preserving flora, fauna or geological or physiographical features of special interest in the area,

or for both those purposes.” (The National Parks and Access to the Countryside Act, 1949).\(^{20}\)

While the designation of Local Nature Reserve does not provide a standard to which conservation efforts must be held, holding this designation protects the space from land exploitation and does indicate a local commitment to the preservation of the space. This government designation also functions as a way to attract humans looking to see certain natural features, as part of the designation includes increased access to outdoor recreation spaces. Cemeteries designated as Local Nature Reserves have become popular spots for people interested in birding because they are reliable sources for local wildlife (Lindo, 2018).\textsuperscript{21} Also in London, the Camberwell Cemeteries are not designated as Local Nature Reserves and are currently being logged to much protest (Friends of the Camberwell Cemeteries, 2016).\textsuperscript{22} The Camberwell Cemeteries demonstrate the difficulties in maintaining natural spaces, especially when they contain sites and resources that can be developed or commodified for human consumption. Using designations protects the ecology of the cemeteries, as well as the historical integrity. However, even without the Local Nature Reserve label, cemeteries can practice and benefit from ecologically sustainable landscaping. Ecologically landscaped cemeteries like Abney Park use fewer resources in development and maintenance, and are able to protect the ecosystems of the land upon which they are built.

\textsuperscript{21}“Urban Birding in North London — Bird Watching Magazine,” \url{https://www.birdwatching.co.uk/uk-destinations/2018/12/12/urban-birding-in-north-london}.
\textsuperscript{22}“FAQs - Friends of Camberwell Cemeteries,” \url{http://www.savesouthwarkwoods.org.uk/faqs/4591807665}.
Abney Park has been an arboretum since its founding in 1840, the first combined arboretum-cemetery in Europe. Containing over 2,500 different varieties of plants, Abney Park provides a natural sanctuary within the built environment of London and was inspired by the design of Mount Auburn Cemetery in the United States. Abney Park was also founded by non-conformists as one of the first non-denominational cemeteries in England, meaning families outside of the Church of England could bury their dead there. Abney Park is one of London’s “Magnificent Seven” cemeteries, as dubbed by architectural historian Hugh Meller to describe a group of seven private cemeteries built in the 1830s to alleviate overcrowding in the inner city burial grounds (Abney Park Website, 2019). The cemetery is strikingly verdant, with large, decorated tombstones erected along pathways that seem small in comparison to the masses of trees around the landscape. Within this greenery are 200 ‘old’ trees, a few dozen of which were from when the cemetery was planted, and 60 of them being considered veteran trees, which are

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defined to be “of particular value to wildlife due to damage, decay or old age” (Abney Park Website, 2019; Miller, 2008). The age of these trees is especially important for the different species that inhabit them, such as fungi and insects that can only exist in a tree experiencing decay. Abney Park is home to many rare varieties of fungus and insect, such as the Orange Shield Cap and the Silky Rosegill. Many of these varieties are rarely found around London or even around the rest of England. The old trees are also established habitats for bats and owls among other mammals and birds, many of which feed off of the high volume of insects.

Figure 4: Map of Stoke Newington shows Abney Park Cemetery situated within the built environment, although near other large greenspaces. Screenshot from Google Maps by author.

Abney Park demonstrates the ability for cemeteries to cultivate the natural context within which they were built. They also exist as islands within the built environment; even in areas

filled with parks, plants (and therefore some larger wildlife) have difficulties thriving and spreading on pavement. When cities are developing new ways of incorporating greenspace into more spaces, they should take into account the natural growth of cemetery biodiversity and how the surrounding environment can benefit those species as well, making sure not to introduce new non-native species that could invade cemeteries. Cemeteries are also sites at which native species can also be reintroduced. As quiet spaces, cemeteries can be used by botanists to grow and care for endangered native plant species so that they can re-establish themselves. Re-establishing native plant species is crucial when restoring ecosystems (Dorner, 2002); as urban greenspace gets developed, native species could be planted that were first grown in a cemetery.\textsuperscript{26} Cemeteries can therefore exist as incubators, nurseries for native plants that can then be spread throughout other greenspaces throughout a city, especially those like parks where higher rates of activity could preclude plant growth. While cemeteries clearly are able to function as ecologically sustainable sites, current funerary practices in the handling of corpses can impact a cemetery’s ability to be ecologically healthy.

Figure 5: A greenhouse of native species in a cemetery. Drawing by author.
IV. The Corpse as Organic Matter

Landscaping is not the only way we introduce organic material into the earth at cemeteries. In fact, some of the most damaging practices around the ecology of cemeteries comes from the treatment of corpses and how they are introduced into or onto the earth. If treated properly, human remains can actually help the local ecologies. However, the two most common methods of human corpse disposal across the globe, which are conventional ground burial (particularly in North America and Western Europe) and cremation, are energy intensive, can be toxic to the local environment, and sometimes hazardous to human health as well. There are suitable alternatives, including variations on ground burial and cremation, that have become increasingly common and do less harm to the environment. Using the same theoretical framework from Jane Jacobs as ecological landscaping, again interpreted beyond cities and humans, we can assess methods of burial and what they contribute to the landscape within which they are placed. Because of the amount of human bodies being concentrated and introduced back into landscape, we have to ensure that the landscape is benefitting from the corpses instead of being harmed by them.

Conventional ground burials involve the preparation of the body which is then placed in a casket and then lowered into the ground. The body, regardless of whether there will be a viewing, is first bathed and disinfected to slow down decomposition. Then, it is prepared; in North America and parts of Western Europe, this often involves the process of embalming. To embalm the corpse, the technician injects the circulatory system with preservatives, draining the blood until it is replaced. The chemical embalming process became widely used in the United States during the American Civil War, so that soldiers dying far from home could be sent back to
their loved ones without decomposing. Today, embalming is mostly used to delay the
deterioration of the body so that it can appear more “lifelike” during viewings. As far back as
1984, major papers have been published on the high cancer and general mortality rates of
chemical embalmers (Walrath and Fraumeni, 1983), with the causation being the use of
formaldehyde in the preservation process (Hauptmann et al., 2009).27,28 While formaldehyde is
now often used in lower proportions in the embalming solution, it is still in use and dangerous.
Formaldehyde and other embalming fluids are also dangerous to the health of the environment of
the burial. These chemicals often leak out of the body, through the casket and into the soil, which
is detrimental for the local biota. When these chemicals leak into the groundwater, the ecological
health of a much larger area is affected and can also impact the human health of those using
groundwater for drinking water (Żychowski and Bryndal, 2015; Chiappelli and Chiappelli, 2008).
29,30 Once these bodies are filled with formaldehyde, they will take much longer to decompose
than bodies buried unembalmed in the same conditions because the formaldehyde kills most of
the microbiota stimulating the decomposition process.

28 Michael Hauptmann et al., “Mortality From Lymphohematopoietic Malignancies and Brain Cancer Among
Embalmers Exposed to Formaldehyde,” JNCI: Journal of the National Cancer Institute 101, no. 24 (December 16,
29 Józef Żychowski and Tomasz Bryndal, “Impact of Cemeteries on Groundwater Contamination by Bacteria and
Viruses – a Review,” Journal of Water and Health 13, no. 2 (September 10, 2014): 285–301,
https://doi.org/10.2166/wh.2014.119.
Furthermore, conventional burial usually occurs in wooden caskets, which, depending on the type of wood, can delay the decomposition by creating a barrier between the body and the soil. When the coffin is heavily varnished and filled with fabric, it too will take longer to decompose. Wooden coffins are usually joined and sometimes ornamented with metal, which corrodes into harmful toxins that seep into the soil. Soil levels around cemeteries contain higher concentrations of certain contaminating metal minerals such as lead, manganese, nickel and titanium, indicating a public health hazard for humans and the other life around the cemetery (Jonker and Oliver, 2012; Spongberg and Becks, 2000). Bodies in conventional burial cemeteries are descended into concrete vaults, which are rectangular enclosures cast to fit inside

the grave used to avoid subsidence. The vault further inhibits the process of decomposition and blocks the soil from benefiting from the decompositional nutrients. Neither wood nor the sand used in concrete are infinite materials, and using either in excess harms the environments they were naturally located in as well as the overall supply.

Cremation is the process of disposing of the body by burning it until it is reduced to ash. The body is stripped of jewelry and any devices, then placed in a flammable container or material. Then, the body is burned. Usually, the body is burned in a cremation chamber and the remains ground up into ashes. Some bodies are burned on a pyre, which is a wooden construction open to the air. Cremation greatly reduces the space a body needs by reducing the volume of the body to that of an urn. However, both of these methods of cremation have detrimental environmental impacts because they have carbon emissions from the combustion of an organic substance and require energy to fuel the combustion and produce noxious and polluting smoke. Most cremations are done inside a furnace, combusting a gas to burn the body. The type of fuel used in combustion impacts the amount of greenhouse gasses emitted during cremation: Between electricity, diesel, liquefied petroleum gas, and biomass gas, diesel and liquefied petroleum gas combust into carbon monoxide and nitrogen oxide, which are toxic chemicals to humans and other living organisms (Achawangkul et al., 2016).33 Funeral pyres, which are usually done outdoors, set the body within a wood fire. While this does not add any different chemical substances, funeral pyres still pollute the air with the carbon content of the combustion smoke. A study done in South Asia, where funeral pyres are prevalent, demonstrated that cremations

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account for “92 Gg of light-absorbing [organic carbon aerosols, mostly CO2 and CO] annually, which is equivalent to ~10 and 23% of the carbonaceous aerosol mass from regional biofuels and fossil fuels, respectively” (Chakrabarty et al., 2013). Then, the ashes are usually placed in an urn (although now there are options to have ashes used in the construction of artificial reefs or shot up as fireworks) and either buried or stored in a Columbarium, which is a room or freestanding structure for urns. If buried, the urns and the ashes have the potential to introduce toxins into the soil and also often are placed within a concrete vault. Urns made of materials such as metals can degrade into dangerous substances, which, like coffins, can be a hazard to both human and general ecological health around the area.

![Figure 7: An urn buried in the ground within a concrete vault. Drawing by author.](image)

The life cycle assessments performed by Elisabeth Keijzer in the paper “The environmental impact of activities after life: life cycle assessment of funerals” quantify the ecological effects of burials and cremations using Dutch funeral company information. Keijzer

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breaks down the funeral system into the necessary materials and the processes applied to them. (see Figure X). Keijzer analyzed these materials and processes through their impacts, including carbon emissions, ozone depletion, humane toxicity, particulate matter formation, terrestrial acidification, freshwater eutrophication, water depletion, and fossil depletion.

Figure 8: Identification of the processes necessary for the life cycle assessment. Credit: Keijzer

What Keijzer found was that in the Netherlands “The total shadow price of burial is about 30% higher than the shadow price of cremation, but the main cause for this difference is a highly debated category… land use… without the shadow prices of land impact categories, burial would score 25% lower than cremation” (Keijzer, 2017). In terms of carbon emissions,
burials have a footprint of 97 kg CO2 equivalents per burial whereas cremations have 210 kg CO2 equivalents. While these exact numbers cannot be applied across cultures due to the different practices and mechanics of funerary rites, they do show us that both processes have a potentially detrimental environmental impact and what processes of the funeral system cause the most change in impact. Notably, Keijzer does not take into account the different body preparations between burial and cremation and bases the data analysis on the same preparation of the corpse for control. As we have seen in other articles (Chiappelli, 2008), burials that involve embalming with formaldehyde have a negative effect on the ecosystem around the site. Neither embalmed burials or cremation allow for the local soil ecology of a cemetery to benefit from the rich nutrients produced from a corpse’s decomposition. However, embalming is not necessary within a burial, it is just a widely practiced tradition.

There are many alternatives for natural burial to help fertilize the plant life around the body, which benefits the entire local ecosystem. Especially when the cemetery is programmed as a mixed-use space (therefore reducing the cost of single-use land), natural burials provide a much more ecologically sustainable alternative to traditional burials or cremations. Our bodies, like most living matter, are part of ecological cycles that reuse the materials that once made us human into the materials for new life.
In a natural burial, people use caskets that are woven reeds or wood without varnish or metal, or a simple shroud made out of organic material. These materials decompose with the body, allowing microorganisms in the soil to break down the corpse. Natural burials do not use concrete vaults, but instead place bodies in the ground, usually around 3.5 to 4 feet below the surface; deep enough to have a smell barrier preventing scavenging animals but shallow enough for optimal decomposition (Green Burial Council, 2019). There are specific natural burial designs as well, like the Capsula Mundi. In the Capsula Mundi, the body is placed in a biodegradable, plant based pod (either in the form of ashes or in the fetal position as a body) which is planted with a tree. The tree then becomes the symbol of memoriam; the forest of trees becomes the field of gravestones. The memorial forest then becomes a method for conserving trees and forests by endowing them with spiritual significance. As with cemetery landscaping, the plant life introduced to the landscape in memoriam should be beneficial to the overall ecology of the cemetery’s region. Natural burials tend to be much less expensive than traditional burials because of the reduced usage of materials and labor in creating the vault, casket, and

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embalming the body. According to the National Funeral Directors Association, in the United States the average cost of a traditional burial was around $8,800 in 2017 and of a cremation burial was around $6,200 (National Funeral Directors Association, 2017). Green burials, on the other hand, cost as much as the burial site and the casket, usually a sum between $1,000 and $3,000 (Corley, 2007).

Figure 10: Pods by Capsula Mundi in which the body fertilizes a tree. Credit: Capsula Mundi

The different available options, the costs, and the ecological sustainability of green burials have made them increasingly popular in the United States. According to the New York Times reporting of a National Funeral Directors Association survey, “Nearly 54 percent of

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Americans are considering a green burial, and 72 percent of cemeteries are reporting an increased demand” (Vatomsky, 2018). However, cremation is still dominating the landscape of death practices; even in the United States, where cremation has traditionally been less common, a 2015 study showed that 47.9% of corpses were cremated as opposed to the 45.2% of corpses buried traditionally. This is a change from 2010, in which 40.4% of corpses were cremated and 53.3% were buried conventionally. The report attributes this change to the comparatively lower costs of cremation, as well as the speed and convenience of the process (NFDA, 2017).

Many natural burial sites do not allow traditional gravestones. The Natural Burial Council website lists the acceptable markers in a green burial site as using GPS, stone corner or flat markers, a plain or engraved fieldstone, metal spikes (for a metal detector), or native plants (Green Burial Council). Sites at green cemeteries often plan to reuse burial sites once the body has finished decomposing, so markers would have to account for all the bodies there. Most sites seem to not want markers for aesthetic purposes, reminding those walking around the cemetery that we are a part of nature rather than something separate from it. Ellen MacDonald, owner of the Eloise Woods Burial Park outside of Austin, Texas, tells WBUR that “The idea is that you're standing in the middle of the woods and you look around and you can't tell that people are buried here” (Kelly, 2018). Stones do somewhat limit the space for plants to grow in soil, but they also give us a sense of legacy and scaled time. Aging gravestones help us understand different aspects of human history. They present a lasting reminder of our relatively short time within human history, and the relatively short time of human existence compared to that of the earth. Without a

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clear demonstration that gravestones negatively impact the environment (which I could not find for anything but concrete grave markers), I believe that their existence can be beneficial and therefore could be incorporated into natural burial practices. The movement away from gravestones seems to demonstrate a changing attitude towards death. Without a gravestone, the mark of a person’s existence remains in the memories of those that survive them and the nutrients within the soul. Instead of grappling with the existentialism of mortality through the placement of lasting memorial objects, a cemetery without gravestones shows satisfaction in the body returning to natural systems, fulfilling its organic role and nourishing the soil. The lack of gravestones also removes the hierarchy between corpses, bringing people together to collectively nourish the soil, then opening up the space to be used for new bodies.
V. The Cemetery as Public Greenspace

During the semester I spent in Copenhagen, Denmark (Spring 2019), I was able to experience cemeteries that harmoniously blended the functions of memorial site and recreational greenspace through design, particularly Bispebjerg kirkegård and Vestre kirkegård. The cemeteries I visited in Copenhagen used clearly demarcated path and field areas for walkers, runners, bikers, and drivers that were separated from the actual burial sites through stone walls or plant life landscaping. These paths and fields were the only sites of higher energy activity, whereas the smaller, more wooded paths through the burial sites were used by mourners, sitters, and slowly walking contemplators. These Danish cemeteries demonstrate a way to enliven spaces for the dead by activating them for the living. These spaces are a successful model of the integration of cemeteries with elements of public greenspace without disrespecting the functions of greenspaces, burial sites, or the contexts of the cities in which they are located.

In *The Death and Life of Great American Cities*, Jacobs states that “The more successfully a city mingles everyday diversity of uses and users in its everyday streets, the more successfully, casually (and economically) its people thereby enliven and support well-located parks that can thus give back grace and delight to their neighborhoods instead of vacuity.” (Jacobs, 1961). Examining the cemetery under the broader lens of “park,” we can see the potential for the activation of cemeteries into park-like spaces and how this could benefit the greater city. Jacobs states that “among the most admirable and enjoyable sights to be found along the sidewalks of big cities are the ingenious adaptations of old quarters to new uses” (Jacobs, 1961). Adapting historical sites, cemeteries, into social spaces brings a new functionality to the

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sites. Necropoli that are as much cities for the living as they are cities for the dead demonstrate our capacity to create and use spaces to spend time with each other, along with the dead and the trees. Jacobs argues that the most exciting parts of the city are the interactions created between people. Bringing people into these spaces to exercise or spend time with friends or visit deceased loved ones or see the art, architecture or nature creates unique interactions between visitors founded upon the universality of death.

Expanding the function of a cemetery into a park is an example of the idea of social sustainability. Social sustainability is the creation of spaces that encourage social systems that result in their continued use. This is often ecologically sustainable because the sustained use will ensure better maintenance and therefore the structures within the space will not have to be reconstructed as often, saving energy and material use. Socially sustainable cemeteries program the space for mourners, workers, and recreational cemetery users in spatial harmony, so that these three main categories of cemetery goers can use the space to their needs without disturbing the others. The Danish cemeteries I visited were designed centralizing the concept of socially sustainability. They were all public properties, with denominational sections but no religious requirements for burial within the cemetery, and were open to anyone who wanted to pass through. Located in highly residential areas, Bispebjerg and Vestre cemeteries are highly frequented by people living around them for walking, cycling, running, or sitting around. Using spatial and event programming, these spaces rethink the cemetery as a site exclusively for burials by including spaces for quiet, respectful, and reflective recreation. Like the natural burials, the social activation of cemeteries fulfills the continuum of death making way for new life.
The poetics of the Danish cemeteries I visited lie in the care applied to every scale of the space. From details to site plan, the cemeteries I visited created spaces for the eye, mind, and body to wander. Paths with strange metal threshold structures and intricate brickwork make walking through Vestre kirkegård engaging and stimulating. At Vestre kirkegård, trees and raised sections of land were used to create informal barriers between sections of the cemetery. These private sections, when demarcating burial lots, allow for mourners to have space to express their loss while other people can use the paths around them for recreation. Neither user disturbs the other. The transparency of the informal barriers also inspires quiet and respectfulness from recreational users by reminding them of the primary use of the cemetery, so that there is no disruptive level of sound. By raising some of the burial lots to a different plane, the designers
created extremely private spaces within the cemetery, particularly for those visiting a grave. These private burial spaces also create a sense of intimacy with the dead, inspiring the mourner to reflect on their personal relationship with the deceased person. The mourner can even express their grief for the lost without feeling watched. Because these spaces are so insular, mourners also have the comfort of time; knowing that they will not be disturbed, they can spend as much time as they need with the tomb they are visiting. For those attending funerals, the privacy of the burial sites creates a space within which the camaraderie of losing a mutual loved one can develop. During the rite of the funeral, the paths also serve as processional spaces. As most paths are separated from other sections of the cemetery with lines of trees or raised earth, those in procession will not disturb other mourners. The large amount of intersecting paths within Vestre kirkegård allows recreational users a space to remove themselves from the processional paths during a funeral. As a cemetery, ensuring that the experience of mourners is respectful both to them and to the dead they are visiting is most important as a cemetery is first a space for the dead and those remembering them.

Informal borders also surround non-burial spaces at Vestre cemetery, such as a set of orthogonally intersecting paths, creating a set of tree-lined axes meeting at an old and overgrown hollow brick structure, something of a gate into the spiritual world (see Figure 12). Large iron portals sit off-center at the ends of the paths; passing through them changes your perception of sound through the echoes off of the metal. Including sites that are programmed not to have graves within the cemetery designates spaces for recreational users, animating the cemetery by non-mourners. Sites like these are especially important in the building of communities and in general public health. They allow for greater socialization by being separate from burial spaces
and therefore are acceptable spaces to gather and talk. They also encourage physical activities, such as walking, running, or biking, which are good for human health. While in Copenhagen, there is generally good access to public greenspace for all people living there, in cities where access to public greenspace is inequitable, cemeteries can be activated so that people can gather or exercise without disturbing those at the cemetery to mourn. As cities grow, cemeteries begin to be speculated as developable land. By creating the cemetery-park, cemeteries transform from just a space to remember the dead into a community asset, a space where the living can come together and experience life and death.

Figure 12: An iron portal and bike at Vestre Kirkegård. Photo by author.
At Bispebjerg cemetery, the space is similarly designed to accommodate the needs of both recreational users and mourners; logically, as both were designed by the prominent landscape architect Edvard Glæsel. However, what is special about Bispebjerg is the site as an attraction through its programming. Bispebjerg is adjacent to the spectacular Grundtvigs Kirke, a church made entirely from bricks (Figure 13). Grundtvigs Kirke, dedicated to NFS Grundtvig, features incredible masonry and design that have made it an architectural attraction. Its architectural significance also influences the increased visitation of Bispebjerg, since visitors to the church looking to take a walk in a park only need to cross a street into the cemetery. In the spring, the area holds another draw to visitors: Bispebjerg kirkegård’s April celebration of the blossoming of cherry trees that brings crowds large enough to fill the tree-lined walkway. Each year, around 150,000 people come to see the cherry trees, many of them choosing to walk around the cemetery afterwards (Dresling, 2019). However, because of the planning of the cemetery, the high activity during the bloom did not affect the mourners in other areas.

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Including programming for the recreational and mourning visitors at the Danish cemeteries is beneficial to both parties. Recreational users are reminded of the ephemerality of life in going to the cemetery, forced to reconcile with their own mortalities but also to appreciate the life that they are still living. Mourners are reminded that life continues, even after death. The diversity in users visiting the cemetery creates an active space, with people using it at all times of day. The high use makes the maintenance of the space encouraged, both by the people operating the space and by users of the space. The high activity at these cemetery-parks also encourages people to keep the surrounding areas well maintained, and makes living near one of them desirable. The sustained use of the cemetery-park also protects the space from being developed.
into something else; even if there is speculation of development, these cemeteries become so locally beloved that I am sure people would protest.

Both Bispebjerg and Vestre cemeteries also activate the space as sites through which one can learn about Denmark’s history. At both Vestre and Bispebjerg cemeteries, we are reminded of Denmark’s histories, from prominent figures in history like astromechanic Jens Olsen (who designed Jens Olsen’s World Clock) to those who died in World War II, when Denmark was occupied by (and somewhat cooperating with) Nazi Germany. Spaces for the dead being sited within a historical narrative transforms them into manifestations of the legacy of human history. Cemeteries create personal historical narratives, giving insight into the lives of individuals buried there. As a collective, however, they give evidence to historical movements. The legacies of wars are demonstrated by the large masses of gravestones all dated with the same years. Reading the cemetery provides proof of large death events, like pandemics or wars or natural disasters. With the tombs of those killed in wars or genocides, cemeteries and other memorial spaces remain especially important in reminding us of the capacity humans have to harm each other. The cemetery becomes a powerful space in which victims can be remembered and honored, especially by their families, bringing communities together in sharing painful ancestral legacies, creating community strength. Cemeteries rebuild histories that are erased; their physicality ensures that those buried are not forgotten. Going to a Danish cemetery as a recreational visitor, we are still forced to reckon with history.

The cemetery-park has many justifications. Within the city full of life, a space to remind us of death is healthy. What better way to honor the dead than by appreciating your life and the life around you? Socially activated cemeteries open up new spaces in which the public can create
community. A mix of intimate and open spaces allow for groups to convene without disturbing mourners and have privacy or enjoy the open air. As a space used by locals, the cemetery also becomes a place to meet other people living near the cemetery. Including paths for outdoor recreation creates more spaces for exercise and leisure, which is especially important in areas without much access to public greenspace. Even in cemeteries that were originally designed only for mourners, we can use the creation of informal barriers (like a line of trees) and leisure space to introduce recreational visitors as well. The social programming of a cemetery inspires us to think about death as a cyclical process, something inevitable, but also something that makes way for new life.


VI. The Cemetery as Art/Architecture

While I was touring around Sweden, Denmark, and Finland studying the architecture of different cemeteries and crematoriums, along with monuments, museums, parks, libraries, and dwellings, I was struck by the emotive capacity held in the structures and the landscape. What are the poetics of designing spaces for the dead? Beyond their multi-functionality as public spaces and cemeteries, these Nordic cemeteries were able to bring soothing to mourners through careful detailing, both in the landscape and in the chapel structures. Thinking about the use of architecture to blend the different functions of the Nordic cemetery exists with the exploration of new formal expressions for philosophies of how communities should build relationships with their dead, I was curious to study different cemetery designs as artistic and architectural spaces. I performed formal analyses of Skogskyrkogården, The Chapel of the Holy Cross, Mount Auburn Cemetery, and a competition for a vertical cemetery in Tokyo to explore how different designers and artists expressed ideas on how to live with death across the four different scales of landscape, building, sculpture, and city.

Artistic and architectural merit also creates the historical valuation of a space. Spaces and sculptures that provide an emotional resonance inspire people to remember and return to them, or share them with others. This activates the spaces, as well as makes them more valuable to those who have experienced them, particularly members of communities nearby that can have pride in the work. Over generations, these are the spaces that are historically recognized and maintained. These are spaces that can be used by students and academics for study, other designers to inspire work, tourists for sightseeing, and locals for recreation. Through the study of cemetery art and architecture, conversations arise between historical cemeteries and the new ones that developed,
reflecting inspirations as well as changing philosophies on our relationship to death. Considering the potential for cemeteries to be artistic and architectural attractions, we create another mechanism through which the cemetery can be socially activated. Jacobs asks, “What does exist here to draw visitors at leisure hours, for instance on weekends?” when discussing the removal of attractions around the Battery Park area of Manhattan (Jacobs, 1961). In the artistic and the architectural, we can incorporate the spiritual, the ecological, the social, and the historical into physical expressions on our relationship with death.

_Landscape: Skogskyrkogården_

*Figure 14: A landscape of graves and trees at Skogskyrkogården in Stockholm, Sweden. Photo by author.*

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Skogskyrkogården was built between 1917 and 1920 and expressed the most radical forms of Swedish architecture. As cemeteries downtown were filling, especially at the end of World War I, the Swedish government designated a site of former gravel pits in the outskirts of Stockholm to be a large public cemetery, commissioning Gunnar Asplund and Sigurd Lewerentz to design the space. The two Swedish architects shaped the landscape to reflect the changing ideas of death caused by the war, creating a space that presents death as a concept beyond an ending, but an inevitable return to nature and as a vehicle for more life to grow. These philosophies become clear in the different formal uses of nature throughout the cemetery.

The incredibly tall trees exist in the realm of the sublime (Figure 14). They create silence in their stillness, only disturbed by the occasional breeze. The age implied by their height warps the experience of time. The trees inspire the living at the cemetery to move more slowly; even the birds seemed to be taking their time moving between branches. The temporal and spatial stillness of the woodlands creates an emotional frame through which to experience the graves. The trees create a tension between their longevity and the relatively short lifespan of the humans buried at the site. Some of the trees were clearly planted to a plan. The trees on the hill shown in Figure 15, for example, are evenly spaced around a small seating area in visual rhythm. This organized placement exists in contrast to the organic variation within a trees form, a reminder of the spontaneity of nature. Throughout the cemetery, there is an interpolation between ordinal and seemingly organic plantings of trees.
Gravestones were variable in size and positioning, some were vertical while others laid horizontally on the ground, but relatively consistent in their sizes and rectangular (or rounded rectangular) forms. They were ordered linearly across the landscape. All the gravesites have spaces for plants, many with small shrubs planted and iron lamps for candles. While I was only there during the day, I am certain the candlelight speckled between the trees would be sublime at night. The ground is covered in soft and thick grass, kept cut but not meticulously so as to look artificial. The grass flows over the landscape on a series of planes that slope into a graduated hill. The consistency of the form of the slope shows the hand of the human, there is no mistake that this landscape was not naturally formed but instead was constructed. 46 Instead of trying to control nature, the designers focus on balance, placing their marks of gravestones, paths, and

buildings, letting nature exist and grow around these crafted spaces. The fluctuation between life and death (or the inorganic) visible at the cemetery recalls the romantic notion that death is not the end but instead a threshold off of which more life can grow.

These meditative patterns and orderings extend into the built architecture as well. Sigurd Lewerentz, in his Resurrection Chapel, used the same relationship between the human drive to create order with the chaos that exists in nature. The floors, ceilings, and walls use patterning that contains organic and geometric elements intertwined. Rocks, irregular in form, are tiled together into waves on the floor, capturing the gaze both through the predictability of the overall pattern and the differences between individual rocks. (Could it be that the cathartic element to this is in the ordering of nature? Nature viewed as conquest, nature always wins) Another chapel, the small woodland chapel designed by Gunnar Asplund, creates an intimate and cozy setting within the trees. The mass of columns outside the chapel recall the trees surrounding the structure. Sited on almost a third of the building’s overall floor area, the columns create an extended threshold between exterior and interior, the transition between forest and room. The placement of the chapels on the site also inserts linear geometries into masses of organic forms. Drawings done by Gunnar Asplund’s studio demonstrate the consideration of the dynamic between geometric and organic forms, particularly with the largest chapel sited at the entrance of the cemetery.47 This structure is not surrounded by woodlands like the other two, but instead sits in a clearing, next to a small artificial pond and the mound with a square of trees planted around the seating area. This space too serves as a threshold between the forest and the (more visibly) built environment.

The idea of threshold is most important in considering the placement of the buildings in relation to the paths for walking. Each structure opens up into a processional path surrounded by a cathedral of trees, prompting the slow movement we perform in holy spaces. The paths construct a narrative for people to walk through, a position to best experience the height of the trees. The central and straight but not ordered placement of the paths suggests both a processional experience of walking and a meandering one. There are paths to wander along through the plots, but also paths on which to move ceremoniously and perform funerary rites. Walking along the paths, there is a sense of intimacy created between the tall masses of the trees, a feeling of solitude but also of being surrounded by life. For mourners, this feeling of life can be comforting when dealing with death, especially the initial feelings of loneliness after losing a loved one. The trees provide company and a reminder of the perpetuity of life beyond humans. Even for non-mourners, the paths create comfortable spaces to walk that inspire a quiescence, so that the activity of the non-mourner does not disturb that of the mourner. The paths and the trees also create a separation between grave site and sites that recreational users of the cemetery would use, which again is a spatial programming allowing for multiple types of users to harmoniously move through the cemetery without disrupting the activities of other users. Through the use of landscape, Asplund and Lewerentz were able to create an emotionally responsive space that brings together mourners and non-mourners in spiritual experience.
Figure 16: Sketches from Skogskyrkogården by author.
At the Chapel of the Holy Cross in Turku, Finland, architecture was created to console the mind in mourning. While the chapel is not a cemetery, it is a space in which to think about the dead. Built spaces for reflection or for performing rites around the dead are important within cemetery design because they, unlike the greater cemetery, are spaces exclusively for mourners (or architectural tourists). The walls of the structures create a boundary dissimilar to the informal borders between the paths and the grave lots. The enclosure creates a privacy in which intense emotions can be expressed and shared by everyone within the space; sharing the enclosed space creates a camaraderie between all of those who lost somebody, even strangers. Well designed buildings in which to honor the dead like the Chapel of the Holy Cross provide consolation and community for mourners.
Figure 18: A small chapel within the Chapel of the Holy Cross. Photo by author.

The Chapel of the Holy Cross was completed in 1967, during the period of the development of the welfare state in Finland and a Finnish modernist identity in architecture (Autio, 2017). Designed by Pekka Pitkänen, the chapel is sited at the edge of a public cemetery in Turku used by both mourners and walkers. From outside, the orthogonal expressions of the building are striking, particularly in the horizontality of the overall form. Like the chapels at Skogskyrkogården, the Chapel of the Holy Cross creates dialogue between organic and geometric forms. The heaviness of the concrete is contrasted by the gentle quality of the light streaming in through the many windows and the prismal openings in the ceiling. The walls were constructed out of cast concrete blocks of different textures and sizes; some were clearly board

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formed, textured with wood grain and even some splinters, while others were much smoother, almost like stone. While the building is exemplary of the minimalist movement in Finland, there is no lack of detailing. The use of right angles throughout the building surfaces and forms creates visual rhythm, with unexpected features interspersed to sustain visual interest. There are strange details on the walls, like a concrete block with a rectangular patch of some raised hemispheres (see Figure 18) or a concrete block that seems to have the surface of a sheet of crumpled fabric (see Figure 17). The particular choices in the texture of the concrete and the furnishings embody the idea of the building as a gesamtkunstwerk, a total work of art in whatever scale you are examining the structure, beyond just the form.

![Figure 19: The main chapel at the Chapel of the Holy Cross. Photo by author.](image)

The chapel contains several rooms, each with a slightly different program. There are three funerary service spaces of different sizes, one very large (Figure 19) and the others smaller and more intimate (Figure 18). The service spaces include a rectangular altar and a plinth for the
casket that descends into the underground crematorium. There is a waiting area (Figure 17), an organ room overlooking the larger service space and many hallways. The differences in programming of the room create flexibility in the ritual of death. The different sizes of the funerary rooms allow for a choice in the size of those attending the service; using the small room with a smaller party makes the room feel full and intimate. The larger room has an entirely different emotional quality, existing as a space in which mourners can reflect on their own experience with the dead, pass through and pay their respects without disturbing the mourning of others. The multiple hallways create space for people to physically wander, if they feel emotionally overwhelmed, similar to the way the formal variations allow for the eye to wander. Similarly, the existence of another chapel creates a space to go and sit away from the chapel in which the service is held. While service spaces are quiet and for mourning, the waiting room is where the family of the deceased can receive other mourners, sharing memories and seeking the comfort of each other. While the service rooms create community through a shared emotional ambience, the waiting room creates community by being a space in which people can communicate their different experiences with the deceased person, coming together in empathy instead of just shared grief.

The poetry within the structure is visible in the expression of this program, especially in the creation of multiple emotional atmospheres that provide a spaces to console a variety of grieving minds. The emotional potency of the space exists in the interaction between sunlight and material. Throughout the building, but particularly in the large service room, there are voids in the ceiling that let in very controlled amounts of light that illuminates particular sections and then diffuses around the rest of the room. Beyond existing as traditional iconographies of the
divine, the voids are also strangely and unevenly shaped, breaking the orthogonal forms so present in the rest of the structure. The position of the light changes with that of the sun but because of the angling of the voids, remains on certain walls. The light reveals details in the material, like changes in texture or the coloring of the concrete. The light also creates a space of shadows where it does not hit. The movement between darkness and light reminds us of the transition between life and death, and how they exist together always. There is no light without shadow, there is no life without death. The sunlight has a nostalgic feel once being passing through the voids in the ceiling and being filtered by the atmosphere. Between the light coming through the windows and through the different ceiling voids, the architecture plays with the idea of memory. The sunlight has a very distinct quality reminiscent of light streaming through the leaves of the trees in a forest or in the hours before the sun has risen when the world begins to be illuminated. We use this association with memory to stimulate our own memories with those we have lost, and also to remind us of the memories we will lose when we eventually pass. Poetic spaces for mourning and reflection like the Chapel of the Holy Cross have the ability to inspire us to come together and remember the deceased, to console us but also to remind us of our own inevitable fates.
Sculpture: Mount Auburn

Cemeteries can also be spaces to exhibit art in the form of tombstone sculpture, as exemplified in the American garden cemetery movement. To understand the role of art in cemeteries, I looked at Mount Auburn Cemetery in Cambridge, Massachusetts. People visit garden cemeteries like Mount Auburn not only for the physical beauty and the history of the spaces, but also for the variety in the forms of the tombstones that transforms the spaces into sculpture gardens.

Statuary and other representations of human form have often been made for spaces for the dead. One of the most famous and lavish examples is the first Chinese emperor, Qin Shi
Huang, being buried with a terracotta army to protect him in the afterlife, and with, according to the Shiji, a rendering of the Chinese landscape using mercury to represent the major rivers (Sima). While most individuals do not have the means to build a sculpted army to protect them in death, smaller idols were sometimes buried with the dead for the same function. Humans also have used their own representation within their space of death. Death masks and painted caskets are both ways to immortalize one’s physical appearance after the body changes post death. While depictions are often idealized versions of a person’s visage, emphasizing corporeal features that express a certain value, death masks made from a mold of a corpse’s face provide a stunningly realistic capture of a person’s form at the time of death.

Figure 21: A variety of tombstones at Mount Auburn Cemetery. Credit: Mount Auburn Cemetery

Grave markers have long been a marker of status for those who have died, especially in graveyards that do not have a consistent form for them; some people even save up throughout their lives in order to afford a monumental structure. People incorporate symbols of power, wealth, knowledge, and religion to represent their lives. American garden cemeteries have long acted as spaces to display works of sculpture as markers for the dead. The most famous of which, the Mount Auburn Cemetery in Cambridge, Massachusetts, has an incredible collection of traditional American stone-slab (often with a curved top) gravestone interspersed with trees and stone obelisks, plinths, columns, angels, and vessels draped in cloth. All of these pieces required skillful masonry, particularly those with intricate details like carved fabric. These garden cemeteries function as an exhibition of grave sculptures as they do as sites to bury the dead. The lavishness and size of the tomb markers are representations of how people saw themselves or their loved ones in death. More lavish and larger tombs would be much costlier because of the amount of labor and materials necessary are far greater than a simple headstone. One of the most striking pieces at Mount Auburn is the Mary Baker Eddy memorial, which is a large circular granite colonnade overlooking the cemetery’s Halcyon Lake, erected in Eddy’s memory by the Christian Science Board of Directors (The Mary Baker Eddy Library, 2014). Eddy was the founder of the Christian Science practice, and her tomb demonstrates her influence in American religion. Eddy’s memorial, and other large tomb markers create a variety in scale throughout the whole cemetery when scattered between smaller stones.

The diversity in shape and form of the different tombstones creates visual interest, as well as a demonstration of the different ways we choose to be remembered. Partially obscured by the

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greenery, the tombstones reveal the variety of their forms and inscriptions only as you move through the cemetery. These variations in tombstones are personalizations, oftentimes using icons to signify an identity trait of the deceased. A cross demonstrates that the deceased practiced Christianity, for example. Other tombstones have personal flourishes showing a person’s passions, what they want to bring with them through death, like the actor Edwin Booth (1833–1893) whose family tomb is inscribed with the words of Shakespeare (Friends of Mount Auburn, 2017).51 There are repeated symbols and forms throughout some of the tombstones, but the hand of the stonemason is always visible in the way they are expressed. The unique tombstones, such as those with portraits, demonstrate the sculptors’ abilities to create and manifest specific visions that people have for their death demarcations. Along with the aging of the rocks, different tomb styles are visible indicators for when a person lived. Different trends in history, such as the receding dominance of Christianity in the United States, are reflected in the tombstones. Contemporary tombstones are far less likely to include cross or angel of death motifs than those from centuries past. This manifestation of history, craft, and landscape into space continues to make Mount Auburn a highly visited site, with over 200,000 visitors a year.

Mount Auburn’s legacy as a site to experience sculpture within the context of history and landscape continues today in the development of new art. Mount Auburn has had an artist residency program since 2014, the first cemetery in the United States to do so (Brown, 2017). These contemporary works are inspired by and contextualized within the sculptural tombstones and historical landscaping. Through the program, “the resident artist is charged with creating works for visitors, drawn from their direct experience, that convey a fresh and innovative

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perspective of Mount Auburn” (Friends of Mount Auburn, 2019). As much as the artist-in-residence responds to the cemetery, the cemetery also gets recontextualized through the lens of the artist-in-residence as a contemporary art space. Other American cemeteries are following suit, often also of the garden cemetery design, by installing sculptures and hosting artist residencies, emphasizing the idea of the cemetery as the art space (Meier, 2019). The introduction of art programming within the existing sculptural space creates an artistic lineage that connects history with the present, attracting both people interested in history and in the contemporary art world.

City: Tokyo

We are in an increasingly urbanized landscape, with 55% of people living in cities worldwide. Cities tend to be dense and land is finite, especially for cities on islands, both within land and water. Cities make cemetery justification even more difficult, because land in cities is seen through the potential to develop. When land is scarce, it tends to be more valuable, and therefore oftentimes in cities spaces are chosen based on their economic potential. In fact, cemeteries like Bukit Brown in Singapore are currently being exhumed in order to construct more housing, highways, and malls, despite their rich ecologies and the histories of all the humans buried there, especially as fewer people practice ancestral worship (Han, 2015). Cities

make us question what we value in cemeteries and how we can argue for them against more quantifiably “beneficial” (read: economically profitable) developments.

Cities also allow us to innovate ways to keep cemeteries active, even when there is no space to bury new bodies. Socially active cemeteries are particularly important in densely populated cities because of the necessity of justification for land use. The idea of the ecologically sustainable cemetery-park is the ideal, because it does not require the energy and materials necessary for the construction of new buildings and creates an active spiritual space within the city that still can be used by everyone recreationally. However, not all cities have the space for expansive cemeteries and have decided that developable land is more important. Some of these cities develop new cemeteries that fit into the smaller area parcels within the urban grid, like developing a cemetery structure within the context of the city building, through concepts of vertical cemeteries. Vertical cemeteries stem from the typology of the columbarium, which are rooms that store urns, but translate and rescale them into urban settings and constructions. The vertical cemetery creates new challenges in building. How do we create a space of poetry and reflection within the context of urban space? How do city noises and smells affect the process of mourning—do they disrupt it or do they remind us that even after death, life continues? Vertical cemeteries give us access to a spiritual space within a city, using the built environment similarly to the way outdoor cemeteries use landscape, namely as an understanding of the interplay between life and death.

For a speculative competition hosted by Arch Out Loud, an “architectural research initiative dedicated to providing opportunities for designers to explore the current atmosphere of architectural and cultural thought,” designers considered Tokyo as a space to introduce a new
vertical cemetery (Arch Out Loud, 2019). The lack of cemetery space in Tokyo is presented in the brief for the competition, where “private developers… have used temples as covers to build cemetery plots which they can sell for ten times the price of land without taxes” (Arch Out Loud, 2015). Especially with an aging population, Tokyo needs a way to mitigate the tension between life and death in the city, for which Arch Out Loud invited designers to introduce proposals. The vertical cemetery that won the competition has not and may never be built. However, as urban spaces become more populated and grow, early speculation on death in the city demonstrates the architectural potential for these spaces.

The different projects presented in the 50 finalists demonstrate different ideas of death and how people walking around the city should be presented with them. Some of the proposals look like other tall city buildings from the outside, but open up into landscapes and temples. Some were underground, keeping the site open as a public square. There are proposals that create vertical public greenspaces and cemetery-parks or that reflect the high technology of colorful city lights. The competition demonstrates that there are copious options in relating death to the city both aesthetically and functionally. The winning design, by designers Wei Li He, Wu Jing Ting Zeng, Zhi Ruo Ma, and Kui Yu Gong, is called “Death is not the end. Being forgotten is.”

The project uses helium balloons as the medium of the coffin, inserting a person’s ashes into the balloon in a biodegradable octahedral box. The premise of the project is that “The appearing and disappearing of balloons resonate with the temporality of life. Departing from the depressing silence in traditional cemetery design, [the designers] propose a new space of tranquility created

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57 Arch out Loud, “Purpose - about Arch out Loud” https://www.archoutloud.com/-purpose.html.
by a tower of rising balloons” (He, Zeng, Ma, Gong, 2016). While the competition results seem to be mostly formal explorations that do not take into account the ecological sustainability of their construction, considering the poetry of death within a city is an important step in integrating cemetery spaces into urban ones.

Figure 23: Vertical Cemetery Proposal. Credit: Wei Li He, Wu Jing Ting Zeng, Zhi Ruo Ma, Kui Yu Gong

VII. The Digital Cemetery?

What do we leave behind on the internet when we die? While the internet may seem like an infinite and intangible space, there are very real spaces in which cloud and other internet data are stored. Digital data requires labor and energy just to exist, so much so that data centers “in total… eat up more than 2 percent of the world’s electricity and emit roughly as much CO2 as the airline industry” (Pearce, 2018). What then, do we do with the information we have on dead people? While some people have Wikipedia pages, most people leave digital epitaphs of social media profiles, personal blogs, or the occasional mention in a news article. When they die, do we get rid of their data to make room for the data of the living? The questions that we have to solve spatially, we have to translate into the digital world. The population grows and with it, the amount of people who are connected to and have information on the internet. The amount of information that exists on the internet is unprecedented in volume and there are physical implications in managing that data. While data centers can be made more sustainable by sourcing the energy used in operation and in cooling the spaces from renewable resources, we may need to think about limiting the data we put on the internet, and managing the existing internet data on our loved ones. However, ideas on internet regulation are just developing. The internet is a mechanism through which people have abused and exploited others, but also is a mechanism used to organize against tyrannical systems. While I do not have solutions as to what we should do with the internet presence of those we have lost, I do believe that we must acknowledge the virtual cemeteries that exist and are growing

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One of the most obvious digital spaces dead people leave behind are their personalized web pages, such as social media sites. According to a study published in *Big Data & Society*, Facebook pages of the dead will outnumber those of the living around the beginning of the next century (Öhman and Watson). Facebook provides options for their users to be enacted once Facebook learns about the person’s death: They can choose to have their page deleted or have their page “memorialized,” which displays a “Remembering” on the dead person’s personal page (this latter option is the default). Facebook users can also choose to appoint a “legacy contact” to maintain their page after death, a digital translation of taking care of and bringing flowers to a grave site. Facebook and other social media pages provide a self-curated personal history for those that share on them, and are a channel through which mourners can remember the internet presence of their dead friends, even providing a way to “contact” the dead by continuing to post on their pages. While other social media such as Instagram do not always have “remembering” on the profiles, users still die and their profiles remain as public as when they were alive, frozen from the moment they passed. I personally found that after my high school art teacher passed suddenly during my senior year, browsing through the plethora of imagery he shared to be quite cathartic. His personality could be found in the different posts, but his page also reminded me how little of his life I actually knew, and how what I learned later was limited to what he wanted to share (or overshare, at times). I was able to remember him by reading something he had written or see text or an image he had curated for his page; his Facebook page still remains a great source of inspiration to me whenever I am feeling stuck.
These profiles of the dead bring up new ethical questions as these digital spaces are new and constantly changing. How did Facebook choose to demarcate dead people’s pages as for “Remembering” them? What if the family or friends of a dead person wants the page removed? How do companies even get the information that a person has died, without the physical body of the dead person, and what happens if they get that information wrong? What then happens to the data of dead people, especially since they are unable to defend their own rights to data privacy? Typical ethical questions around data security are made even more complicated in the condition of the dead because they are incapable of advocating for themselves.

Facebook pages are also no way a complete record of everyone who is alive. Not everybody has access to the Internet, and people (like myself) have chosen to exclude themselves from the digital narrative social media companies are building. However, we do not know the information they have stored on us, whether from “deleted” accounts or from accounts of those
around us, and therefore do not know the actual amount of data being stored on each of us. Assessing whether or not Facebook will even be relevant or exist within the next few decades is difficult; while the Facebook company’s media (especially Instagram) seem to be sticking, MySpace and AIM had unpredictably short lifelines. Especially since Facebook and other big tech companies are finally being challenged on their manipulation of their users, the possibility exists that these companies will be severely modified within the next few years.

The internet has a plethora of platforms around death. There are outlets for finding a deceased person’s plot, such as on http://webcemeteries.com, and digitized obituaries. These outlets bring forward new questions on the creation of digital spaces explicitly for the dead. Is there a space on the internet within which we should combine a person’s internet legacy with information on where they are physically buried? An internet cemetery would be useful for those who cannot physically go and visit the site of someone’s grave. However, concerns we have about the internet are still valid in the world of internet cemeteries. We still must be careful about a person’s privacy and the data that services collect, even after death. We also must make sure that we are not neglecting the spaces on earth for those on the internet. Cemeteries create a camaraderie both between us and with our physical environment, something that seems impossible to cultivate on the internet. Physical spaces create an emotional resonance that cannot be replicated online, even by the most technologically advanced of simulacra stimulating all of our senses. Even if we had cemeteries recreated tombstone by tombstone in VR, when technology can simulate a breeze or the way the light moves across concrete details, the most necessary experience in the cemetery is the facing of reality of our impermanence within the physical world.
VIII. Last Words

Italo Calvino, in his “Cities and the Dead 3” in the book *Invisible Cities*, details the city of Eusapia. Eusapia is a city whose necropolis was built underground as a mirror image of the living city. Calvino concludes the chapter:

“They say that every time they [the hooded brothers who transport people between the realms of the dead and the living] go below they find something changed in the lower Eusapia; the dead make innovations in their city; not many, but surely the fruit of sober reflection, not passing whims. From one year to the next, they say, the Eusapia of the dead becomes unrecognizable. And the living, to keep up with them, also want to do everything that the hooded brothers tell them about the novelties of the dead. So the Eusapia of the living has taken to copying its underground copy.

They say that this has not just now begun to happen: actually it was the dead who built the upper Eusapia, in the image of their city. They say that in the twin cities there is no longer any way of knowing who is alive and who is dead.” (Calvino, 1972, Invisible Cities).

I believe that like the citizens of Eusapia, we have much to learn from our cities of the dead. The necropolis is a space in which we can remember histories. We remember the personal histories of those we knew, we remember our familial or cultural histories shaping the dynamics we experience, we remember our history as humans, from the atrocities to the empathy we are capable of expressing. We remember that we will join the gravestones in the soil, inhabiting new cities of the dead, constructed without burdening the natural world. But cemeteries as they are built and used today are often unsustainable. From separating the body from regeneration within the earth to exorbitant amounts of material and energy usage and toxic pollution, cemeteries are
contributing to the destruction of the environment. When cemeteries are not used by the living beyond interring the dead, I understand why they would seem unnecessary. However, the different cemeteries and practices I examined demonstrate that the necropolis can be a city as bustling with life as the metropolis, both for humans and for non-human species. Jacobs states that “to understand cities, we have to deal outright with combinations or mixtures of uses, not separate uses, as the essential phenomena” (Jacobs, 1961)\(^6\). Cities of the dead too operate best when their uses and users are diverse.

Trying to convince people to change their habits is never simple, even if those habits are harmful to the environment and public health. Asking people to give up embalming, caskets, and vaults as well as asking them to use cemeteries as social spaces is asking people to confront their mortalities and the resulting natural decay of their bodies. Rituals of death are often tied to religion, which sometimes results in the attachment spiritual significance to unsustainable practices. Hopefully, people will respond to needs for change by choosing and designing sustainable cemeteries both to be buried in and as to use as public greenspaces.

In sustainable cemeteries, humans learn to welcome their own mortalities as essential elements within natural systems. Embracing cemeteries as an active space is the convergence of the two Eusapias, the blurring of the living and the dead. Death is not an end but a change in matter, a movement into new life.