

# a resonance in death

envisioning the future of dying in an urban system



The only memento from a grave visit is a Polaroid shot by your assigned DOC officer

Country / City ..... New York, New York .....

University / School ..... City College of New York .....

Academic year ..... 2019 .....

Title of the project ..... A Resonance in Death: Envisioning the Future of Dying in an Urban System .....

Authors ..... Anna Speidel .....



TECHNICAL DOSSIER

Title of the project	A Resonance in Death: Envisioning the Future of Dying in an Urban System
Authors	Anna Speidel
Title of the course	Independent Studio
Academic year	2019
Teaching Staff	Denise Hoffman Brandt, Elisabetta Terragni
Department/Section/Program of belonging	Landscape Architecture
University/School	City College of New York



Written statement, short description of the project in English, no more than 250 words

This project envisions the future of dying in an urban system. The death industry in the United States is in the midst of a paradigm shift: away from traditional burial toward an increasingly secular view of after-death ritual. After decades of environmental movements, an awareness of the self as part of a broader earth system is mainstream. Requests for cremation and natural burial now outnumber those for casket burial. In coastal urban landscapes, populations are booming, sea levels are rising, and living space is dwindling. Made increasingly evident by the Covid-19 pandemic, space for the dead is in high demand and there are few places to put them. New York City has a history of replacing burial grounds with popular parks, but when the mayor recently suggested temporary burials occur in famous Central Park, the uproar could be heard around the world. Heart Island, has been New York City's public burial ground for over 150 years and is the final resting place for over 1 million people. Located at the northern-most reaches of the Bronx, the island is only accessible by a ferry operated by the Department of Corrections once per month for visitors. With private cemeteries reaching full capacity, the cost of local private burial can be anywhere from \$8,000 to \$10,000,000. There is an immediate need for change in the way New York City handles death. This project proposes a new future for Heart Island: a contemplative landscape that supports and maintains a new system for city burials. Alkaline hydrolysis is a process that will be used to break down the tissues of the body into its most basic components, producing a sterile solution that is applied to degraded soils to catalyze microbial growth and rich plant life.

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CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

Barcelona September 2020  
SCHOOL PRIZE





A whale-fall can sustain an entirely unique and specialized community at the ocean floor for up to 100 years.

4 months - 2 years

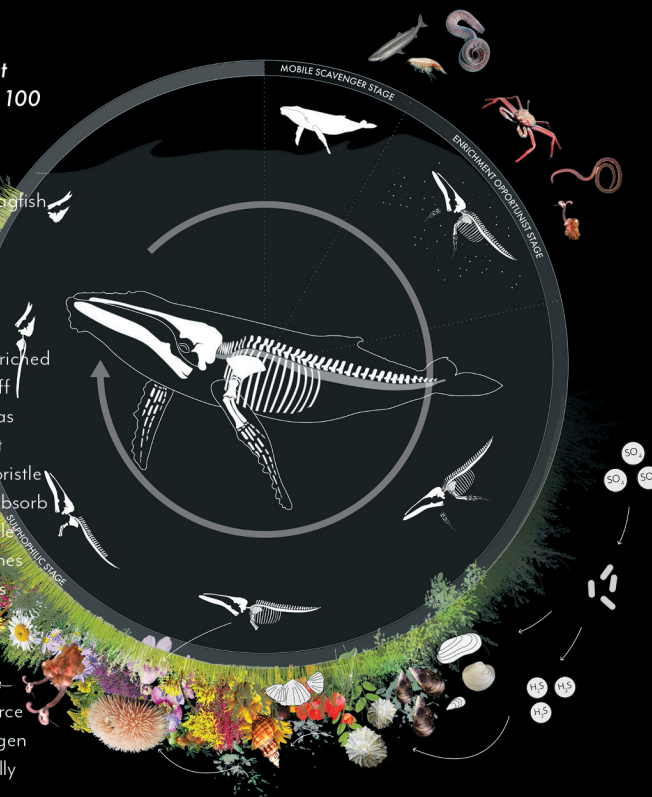
Scavenger species such as hagfish, sleeper sharks and crabs eat blubber, muscle and internal organs off carcass bones.

2 years

Invertebrates colonize the enriched local environment, feeding off of tissue and blubber that has accumulated in the sediment around the carcass. Snails, bristle worms and hooded shrimps absorb nutrients from sediment. While Osedax worms attach to bones and feed on interior fat stores.

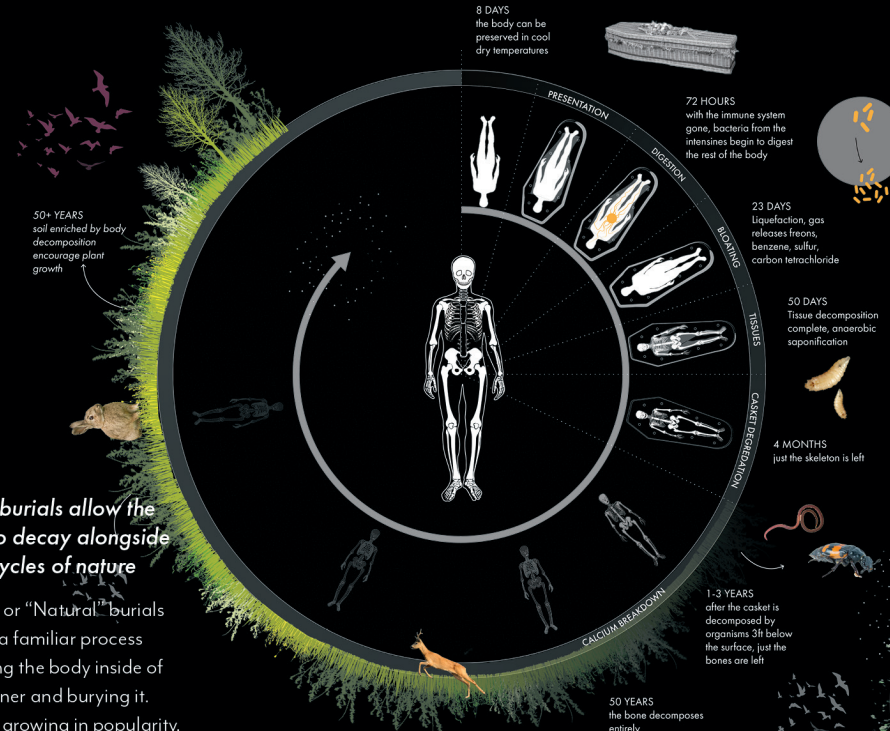
10 - 100 years

Specialized bacteria that use dissolved sulfate as their source of oxygen and release hydrogen sulfide as waste, anaerobically break down lipids contained in the bones. Chemosynthetic bacteria take oxygen from the seawater to oxidize the sulfide, generating energy for growth. Animals can then either exploit such bacteria symbiotically or feed on them by grazing bacterial mats.



Green burials allow the body to decay alongside other cycles of nature

"Green" or "Natural" burials provide a familiar process of placing the body inside of a container and burying it. Though growing in popularity, this method is largely reserved for rural areas where a large field can be specifically maintained for decomposing remains.



Alkaline hydrolysis for human burial can reverse the negative effects of traditional burial methods that have left dead and polluted soils throughout American cemeteries.

60-90 gal of water [amount 1 person uses in a day] + 4 gal of alkali + 90 kWh

sugar, salt, peptides and amino acids; DNA unzips into its nucleobases, cytosine, guanine, adenine, thymine

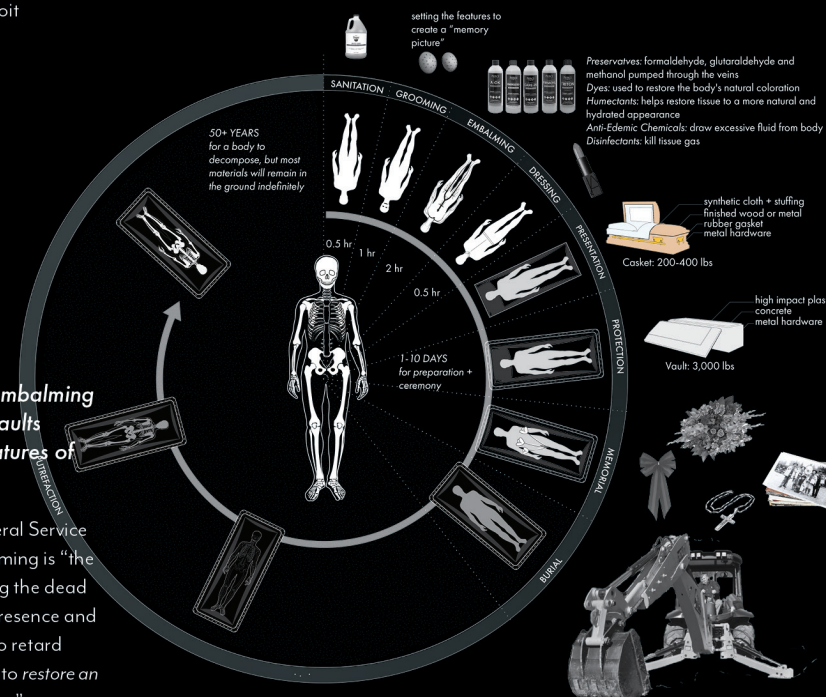
= 120 gallons of slightly alkaline, sterile effluent



Traditional burials with embalming and sealed coffins and vaults remain as permanent features of the ground

The American Board of Funeral Service Education states that embalming is "the process of chemically treating the dead human body to reduce the presence and growth of microorganisms, to retard organic decomposition, and to restore an acceptable physical appearance."

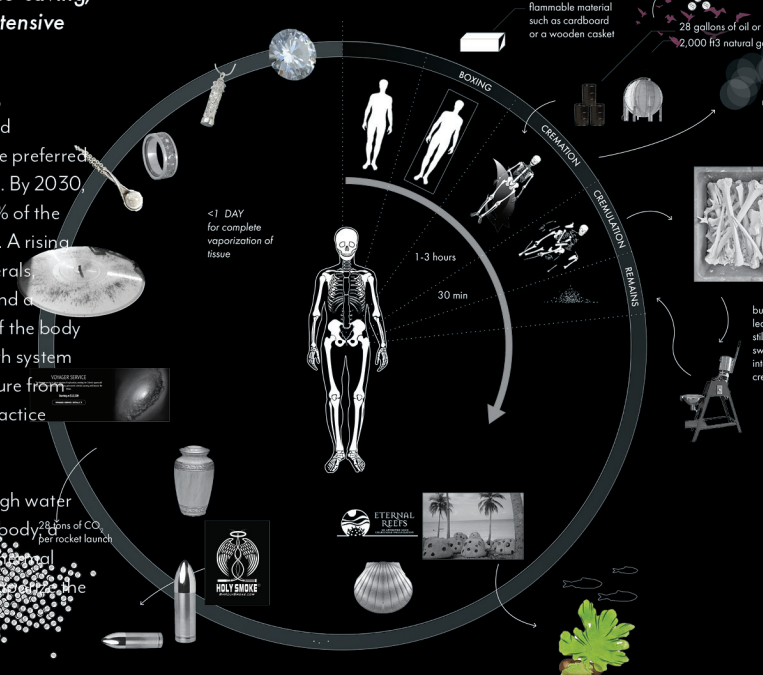
Embalming was popularized in the modern era as burials were occurring further from town centers. Embalming became standard practice for transporting U.S. soldiers home for burial.



Traditional cremation is cost effective, and space-saving, but is an energy intensive process.

Over the past 15 years, cremation has surpassed traditional burial as the preferred method for Americans. By 2030, it is predicted that 80% of the dead will be cremated. A rising cost of traditional funerals, limited burial space, and a trending philosophy of the body as part of a larger earth system and a growing departure from traditional religious practice might explain this.

However, due to the high water content of the human body, a very large amount of energy is required to vaporize the tissue from the body.



Alkaline hydrolysis produces "ashes" and a mixture rich in organic compounds that can be used to fertilize plants and rebuild degraded soils

This process is gaining popularity and status for its minimal effect on the environment. It is legal in 16 U.S. states, but not yet New York. Bone "ash" leftover is treated the same as if it was cremated with heat and can be used in many forms of memorialization. Effluent is sterile and can be used or disposed of down the drain with no adverse effects.





1700 1750 1800 1850 1900 1950 2000

African Burial Ground at the Internal Revenue Service  
Union Square  
Sara D Roosevelt Park  
Bryant Park  
Kings County Cemetery  
Brothers Island?

Madison Square Park  
Washington Square Park  
Waldorf -Astoria Hotel

Wards/Randalls Islands  
Hart Island



**Sara D Roosevelt Park**  
Potter's Field 1795-1843  
5,000 African bodies

**Washington Square Park**  
Potter's Field 1797-1825  
125,000 burials  
20,000 bodies still remain

**Union Square Park**  
Potter's Field 2-1807

**Madison Square Park**  
Potter's Field 1794-1797  
1,500 bodies still remain

**Wards/Randalls Islands**  
Potter's Field 1850-1869  
>100,000 bodies  
\* undocumented location

**Brother's Island**  
Potter's Field 1917 unconfirmed  
as destination for bodies  
from Kings County Cemetery

**Hart Island**  
Potter's Field 1869 Present  
>1 million bodies  
\*burials performed by inmates

**Waldorf -Astoria Hotel**  
Potter's Field 1822-1859

**Bryant Park**  
Potter's Field 1823-1840

**Internal Revenue Service**  
Potter's Field 1690-1794  
20,000 African bodies

**Kings County Cemetery**  
Potter's Field 1853-1917  
100,000 bodies  
\*burials performed by inmates

Hart Island, New York City, has been the place for the unwanted for centuries. With more than 120 burials per week during the Covid-19 pandemic, the island is no longer a place of the unknown.



1890 Burial  
cr. Museum of the City of New York



1992 Burial  
cr. Joel Sternfeld



2020 Burial  
cr. John Minchillo vis NPR.org

POTTERS FIELD

TEMPORAL PROGRESSION

Governors Island  
172 acres  
Population 2,990  
Households 1,587

Roosevelt Island  
178 acres  
Population 11,661  
Households 4,694

Rikers Island  
413 acres  
Population 11,091  
Households 0

Wards/Randalls Island  
520 acres  
Population 1,648  
Households 0

Hart Island  
131 acres  
Population 0  
Households 0

City Island  
230 acres  
Population 4,236  
Households 2,075

1863  
During the Civil War, 4,000 African American soldiers in the 31st United States Colored Troops regiment for the Union Army use the island as a training ground and barracks. The island is used as a Prisoner of War camp holding 3,413 captured Confederate soldiers. 235 POWs were the first to be buried on Hart Island.

1868  
The City of New York purchases the first 45-acre parcel of the island, citing it an ideal location for burial away from the public eye.

1870  
A yellow fever epidemic sweeps across NYC and island is used as a quarantine medical facility.

1885  
The island holds a women's asylum, a men's workhouse, and is used to board short-term inmates from the Roosevelt Island penitentiary until 1914

1915 - 17  
Existing buildings are used as a tuberculosis sanatorium, later shut down when deemed unsuitable by a Grand Jury in 1917.

1917  
The island continues to be used for burials of the city's unclaimed

1939 - 46  
Prison is cleared for German POWs during World War II

1950 - 54  
Department of Welfare takes over the island for the housing of male derelicts.

1966 - 76  
Phoenix House drug and alcohol rehabilitation center opens and uses occupational therapy exercises such as farming and the repairing of shoes on the island.

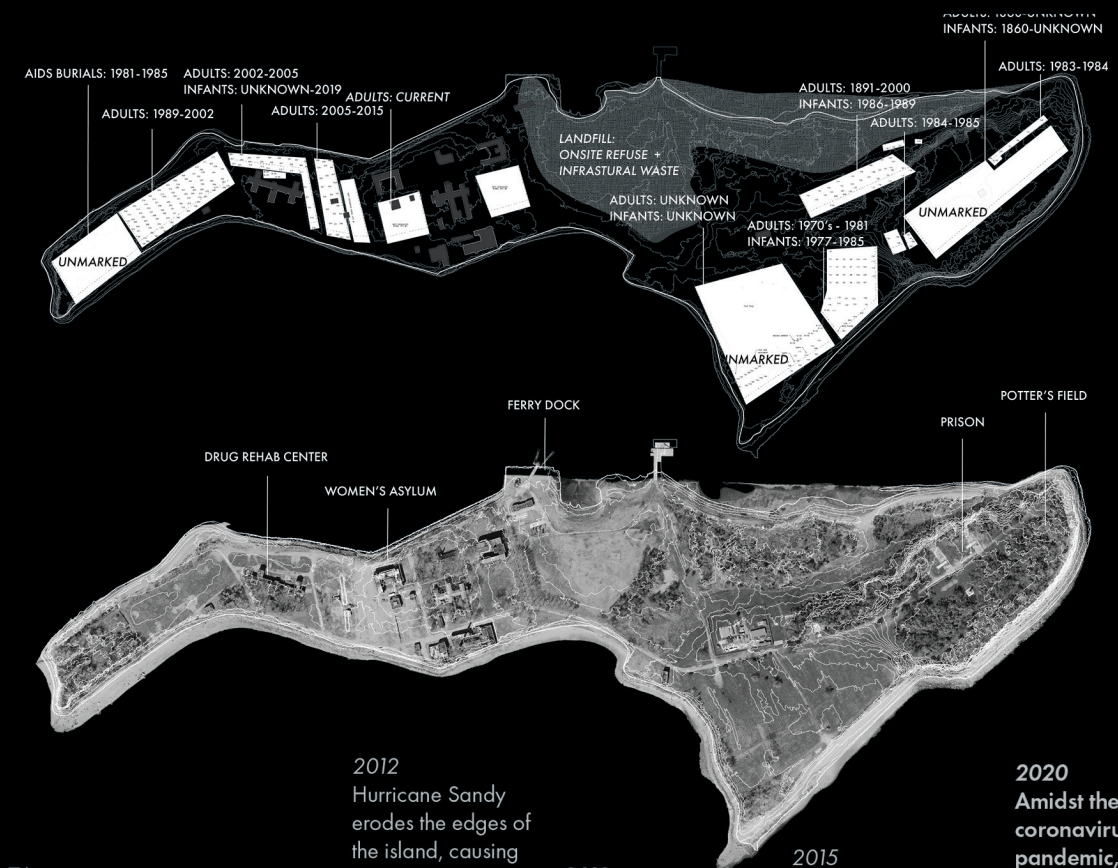
1991  
Misdemeanor Rikers Island inmates are paid meager wages dig trenches and bury the dead of Hart Island.

2012  
Hurricane Sandy erodes the edges of the island, causing surfacial damage and exposing remains on the coastal edges. 13.2 million is awarded for restoration and hazard mitigation in the form of a sea wall

2013  
The DOC announces a searchable database of records covering most years dating back to 1977. At the time of its release, the database contained over 65,000 entries.

2015  
New York City settles a class action lawsuit permitting relatives to visit graves one weekend per month.

2020  
Amidst the global coronavirus pandemic, burials jumped from an average of 25 bodies per week to 120 bodies at its highest.





### Hydrolysis as Natural Fertilizer

Contains a larger complement of nutrients: nitrogen, potassium, phosphorus, pH flexibility

Reduces leaching risk of phosphorus harbored in solid form (bone ash)

Has long-lasting residual effects because of slow nutrient release, and therefore increased plant utilization

Maintains organic matter in the soil and encourages microbial complexity

Excess effluent can safely be disposed of through the city wastewater system

The nutrients supply necessary food for the microorganisms of sanitary treatment plants.

### Woodland Memorial

Coastal Woodland AIDS Memorial  
The landscape of southern tip of Hart Island commemorate the many victims of AIDS that were buried here in the seventies and eighties. Once meant to be strictly separated from the rest of the island, the woodland memorial will be fully integrated into the ecology and visitor experience of the island.

### Hart Island Ruins

The rich and traumatic history of the island is exemplified here in spirit and landscape. Vegetation is allowed to mingle with heritage structures, and pathways and gardens are woven throughout to create a walking history through the site.

### Regenerative Burial

Part of this building serves as an arm of the city morgue, where bodies are stored for a period of time to allow claims. After a period of time, unclaimed bodies will be hydrolyzed, their chemical compounds used to nourish the soil of Heart Island.

### Growing Matter

Nutrient rich liquid effluent is a sterile and complete fertilizer that can be used to rebuild the degraded soils of Hart Island and other Parks Department properties. The effluent has a very high carbon value which enhances soil performance as a growth medium, and absorbs carbon dioxide which benefits our atmosphere and the plants which use it.

### Feeding the System

Burials on Hart Island will demonstrate a new system of mass burial, one that prioritizes respectful and dignified treatment. The final resting place will not only be among lush gardens and verdant landscapes, but be a part of their growth.

### Nike Catacombs

The remnant structure of the Nike Missile Storage becomes catacombs for future Hart Island Burials, providing a contemplative space where visitors can be in the presence of their loved one. The underground structure will be lit with sunlight through an array of mirrors.

