The Living Archive and the Sublime Nature of the Anthropocene: A Design Studio Model

JULIE LARSEN
Syracuse University

At the 2015 UN Conference on Climate Change in Paris France, 195 nations reached a decision to commit to decrease the severe effects of climate change on the planet. As we embark what some call the Anthropocene Era, we bare witness to how civilization has impacted the Earth's ecosystem, diminishing its resources and threatening its biodiversity. With this shift in our ecosystem, a new pedagogical model for a graduate architecture studio responded to the Anthropocene through a technologically sublime intervention: The Living Archive, a new architectural type capturing the magnitude of Earth's inevitable transformation. The 'living archive' program is not meant to be a stable, secure vessel but uses technological invention to bracket what is being invaded by human existence. Through the invention of an 'archiving machine', the studio used technological speculation to question what nature can or will become. The aim was to use 'living archive' as a physical commentary or critique on our current relationship to the environment. The poster describes three studio projects that speculate on the inevitable future of different environments. Through analysis, technological research, and formal aspirations, each project embodies a potential reality and potential future of the Anthropocene.

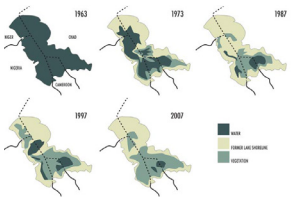
The Living Archive Scenario is that the environment and its water bodies are changing for the worse, potentially flooded, absorbed, melted, dried up, or obsolete. As a project, the archive becomes its own critique on the abundance of global and ecological change happening in the world today. The living archive is not a stable, secure vessel but preserves the environment by using technological invention to frame what is being invaded by human existence. The production of nature, is the belief that societies make nature and force us to consider what nature has been and may yet become (Gissen 2010). With the production of nature, there is an opportunity for a living archive to frame new potential in the role of production within a particular environment that is no longer productive or has the potential to become more so. Through the invention of an archiving machine, the studio used technological speculation as a way to define a new architectural type of production that questions what nature can or will become. The 'living archive' as a machine becomes a design speculation that reveals the sublime nature of a place, its impact on culture through new technological intervention, and its position within the context of the Anthropocene.

THE LIVING ARCHIVE

AND THE SUBLIME NATURE OF THE ANTHROPOCENE: A DESIGN STUDIO MODEL

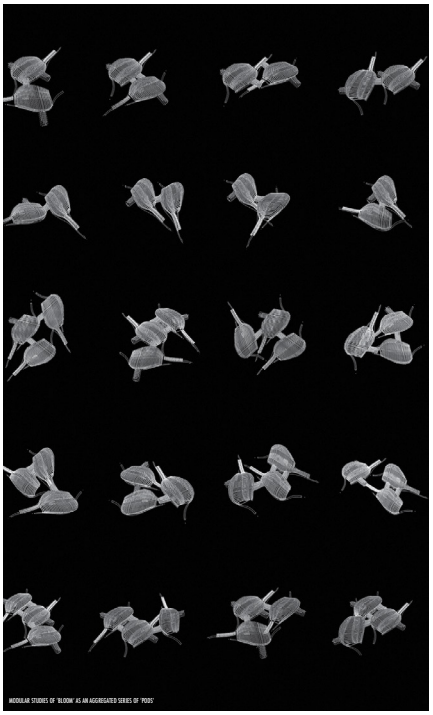
At the 2015 UN Conference on Climate Change in Paris France, 195 nations reached a decision to commit to decrease the severe effects of climate change on the planet. As we embark what some call the Anthropocene Era, we bare witness to how civilization has impacted the Earth's ecosystem, diminishing its resources and threatening its biodiversity. With this shift in our ecosystem, a new pedagogical model for a graduate architecture studio responded to the Anthropocene through a technologically sublime intervention: The Living Archive, a new architectural type capturing the magnitude of Earth's inevitable transformation. The 'living archive' program is not meant to be a stable, secure vessel but uses technological invention to bracket what is being invaded by human existence. Through the invention of an 'archiving machine', the studio used technological speculation to question what nature can or will become. The aim was to use 'living archive' as a physical commentary or critique on our current relationship to the environment. The poster describes three studio projects that speculate on the inevitable future of different environments. Through analysis, technological research, and formal aspirations, each project embodies a potential reality and potential future of the Anthropocene.

The Living Archive Scenario is that the environment and its water bodies are changing for the worse, potentially flooded, absorbed, melted, dried up, or obsolete. As a project, the archive becomes its own critique on the abundance of global and ecological change happening in the world today. The living archive is not a stable, secure vessel but preserves the environment by using technological invention to frame what is being invaded by human existence. The production of nature, is the belief that societies make nature and force us to consider what nature has been and may yet become (Gissen 2010). With the production of nature, there is an opportunity for a living archive to frame new potential in the role of production within a particular environment that is no longer productive or has the potential to become more so. Through the invention of an archiving machine, the studio used technological speculation as a way to define a new architectural type of production that questions what nature can or will become. The 'living archive' as a machine becomes a design speculation that reveals the sublime nature of a place, its impact on culture through new technological intervention, and its position within the context of the Anthropocene.

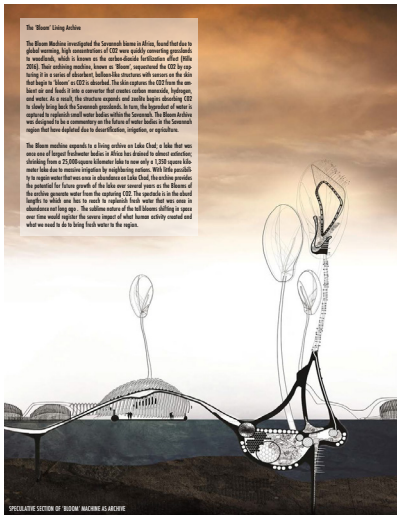


DEPLETING FRESH WATER LAKE CHAD, FROM 1963 V. 2007, NEARLY MOST OF THE LAKE HAS DISAPPEARED

The 'Bloom' group studied the impact of CO2 fertilization and decreasing rainfall in the northern Sahel of the Grasslands and Savannah biome in Africa, which is causing parts of the grasslands to shrink and turn to woodlands. The increase of CO2 in the air creates an increase in woody plant mass in parts of the Savannah. This group eventually studied how the excess of CO2 could be captured and converted to fuel and water. They also discovered, in areas of the Savannah in Africa, that fresh water lakes are disappearing due to irrigation and agriculture.

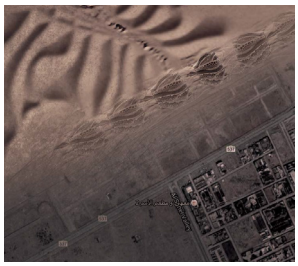


MODULAR STUDIES OF 'BLOOM' AS AN AGGREGATED SERIES OF 'PODS'



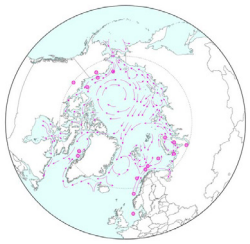
SPECULATIVE SECTION OF 'BLOOM' MACHINE AS ARCHIVE

SITE PLAN OF BLOOM ARCHIVE MOVING TO DIFFERENT LOCATIONS ALONG LAKE CHAD



SITE PLAN OF DUNESCAPE STRUCTURES IN DAMMAM, SAUDI ARABIA
DUNE AND SAND STORM PATTERNS WERE STUDIED FOR THE DESIGN OF THE MACHINE'S SKELETON TO CAPTURE SAND

The 'dunescape' group studied desertification in the Desert biome and the loss of aquifers due to irrigation in arid regions like Saudi Arabia, China and the United States. They discovered that desertification, the depletion of soil due to human use, is causing previously arable land to become desert and unusable. This eventually led them to study the wind patterns and areas at risk in Dammam, Saudi Arabia that could potentially shift back to more arable land where agriculture and greenhouses are at a premium.



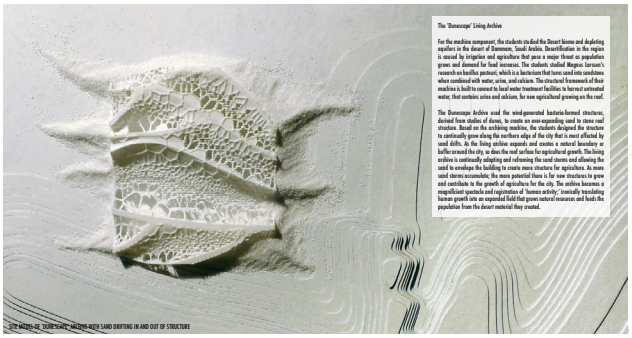
MAPPING OF WIND CURRENTS IN THE ARCTIC TO STUDY SHIFTING ICE PATTERNS

The 'constructing ice' group studied glacier movement and the freeze / thaw cycle of the Arctic biome to understand the rate at which ice was melting and where ice patterns formed. The greater impact on the Arctic, due to higher global temperatures, is having a profound affect on a number of wildlife in the Arctic, which is being forced to change migrations, and animal mating patterns as a result. They also studied Arctic water currents and 'lost ice' which is, by definition, sea ice that is anchored to the shoreline. The students saw the location of 'lost ice' as a potential place to ground the project and capture waves energy for artificial ice that could aggregate over the storm. The recurring seasonal changes to the ice patterns showed that there is more and more ice movement during winter months than ever before recorded. The alarming rate of ice drift and glacier movement during the winter season was an opportunity to reflect on the vulnerabilities and fragility of the Arctic due to climate change.

The 'Constructing Ice' Living Archive

This group studied the Arctic biome and used the machine to speculate on 'Constructing Ice' as a way to combat melting ice caps in the Arctic. The students aimed to show the absurdity and length we need to go to, in order to maintain the status quo of the arctic ice shelf. Their machine was designed as a water tank system, run on wave turbines that freeze and move water through liquid refrigerant piping to produce ice modules for artificial icebergs. The result was a series of iterative formal studies of ice module accumulation. The tripong modules interlock with one another as they float to the surface and form deep, stacked formations.

In the Constructing Ice Archive, the ice modules form a series of smaller artificial glaciers that can link together to form a field condition with larger aggregations. The challenge with the Constructing Ice Archive was the scale of the Arctic and the ability to negotiate between an edge of a glacier and the field conditions of the vast oceans. The living archive never stops growing as additional ice modules continually accumulate to form larger aggregations of ice sheets that can expand along the Arctic Ocean. While the living archive produces ice, it also captures natural icebergs that migrate into the 'lost ice' composite along the shoreline. The archive becomes a commentary on the never-ending exploitation of technology to solve our problems. The spectacle is in the scale and absurdity of continually freezing water that creates a smaller man-made sublime, nature of artificial ice sheets and icebergs for this dystopic Anthropocene Era.

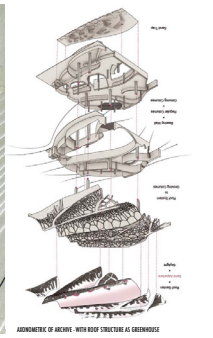


SITE MODEL OF 'DUNESCAPE' ARCHIVE WITH SAND DRIFTING IN AND OUT OF STRUCTURE

The 'Dunescape' Living Archive

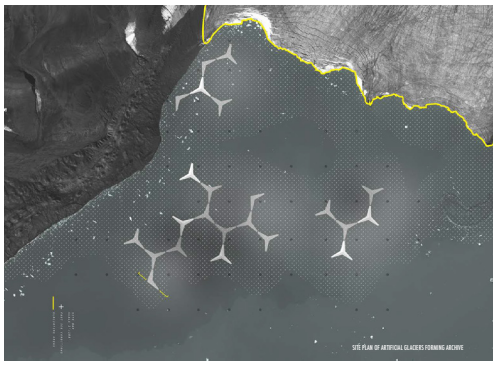
For the machine component, the students studied the Desert biome and depleting aquifers in the desert of Dammam, Saudi Arabia. Desertification in the region is caused by irrigation and agriculture that pose a major threat as population grows and demand for food increases. The students studied Magnus Larsson's research on bacillus pasteuri, which is a bacterium that turns sand into sandstone when combined with water, urine, and calcium. The structural framework of their machine is built to connect to local water treatment facilities to harvest untreated water, that contains urine and calcium, for new agricultural growing on the roof.

The Dunescape Archive used the wind-generated bacteria-formed structure, derived from studies of dunes, to create an ever-expanding sand to stone roof structure. Based on the archiving machine, the students designed the structure to continually grow along the northern edge of the city that is most affected by sand drifts. As the living archive expands and creates a natural boundary or buffer around the city, so does the roof surface for agricultural growth. The living archive is continually adapting and reforming the sand storms and allowing the sand to envelope the building to create more structure for agriculture. As more sand storms accumulate, the more potential there is for new structures to grow and contribute to the growth of agriculture for the city. The archive becomes a magnificent spectacle and registration of 'human activity,' ironically translating human growth into an expanded field that grows natural resources and feeds the population from the desert material they created.

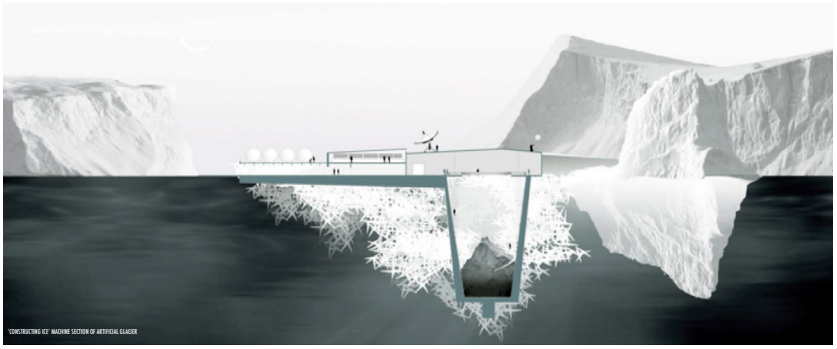


AXONOMETRIC OF ARCHIVE - WITH ROOF STRUCTURE AS GREENHOUSE

'CONSTRUCTING ICE' MACHINE SCENARIO -
ACCUMULATING ICE TO FORM ARTIFICIAL GLACIER



SITE PLAN OF ARTIFICIAL GLACIERS FORMING ARCHIVE



'CONSTRUCTING ICE' MACHINE SECTION OF ARTIFICIAL GLACIER