

GUIDE TO FUTURE HISTORIES
LOGAN MILLER

Table of Contents

Chapter One: Research Regarding the Trope Index 001 - 003

Chapter Two: Site and Building Analysis - 005

Chapter Three: The Narrative - 010

Chapter Four: The Machine - 015

Overview - 019

Bibliography - 020

Introduction

This guide is designed to be an instructional booklet; explaining different processes and ideas that were used in order to allow the project, Future Histories, to reach its final form. Insight into different precedents, books, articles, and other external sources that were used to inspire all aspects of the work will be the focal point of this artifact. This booklet is meant to be a companion to the primary work.

Chapter One

Research Regarding the Trope Index 001

The Trope Index is a visual stimulant for the creative design process. A collection of images, renders, and words that can be relied on to provide inspiration and direction to a project with many potential outcomes and realities. The Trope Matrix Image, as well as the Trope Index PDF provide the reader with the primary information and visuals that were used to progress the architectural design in Future Histories. The stories, as I have interpreted them, behind each of the images, were used to build nine different architectural representations. Image 001 is an example of two of my creations regarding this process. All of constructed renders were made with the intent to be built around the same recognizable obelisk. A constant in each image that pushes the mind to focus on what is occurring in the scene, rather than the built environment itself, embracing the emotion of a moment in time.

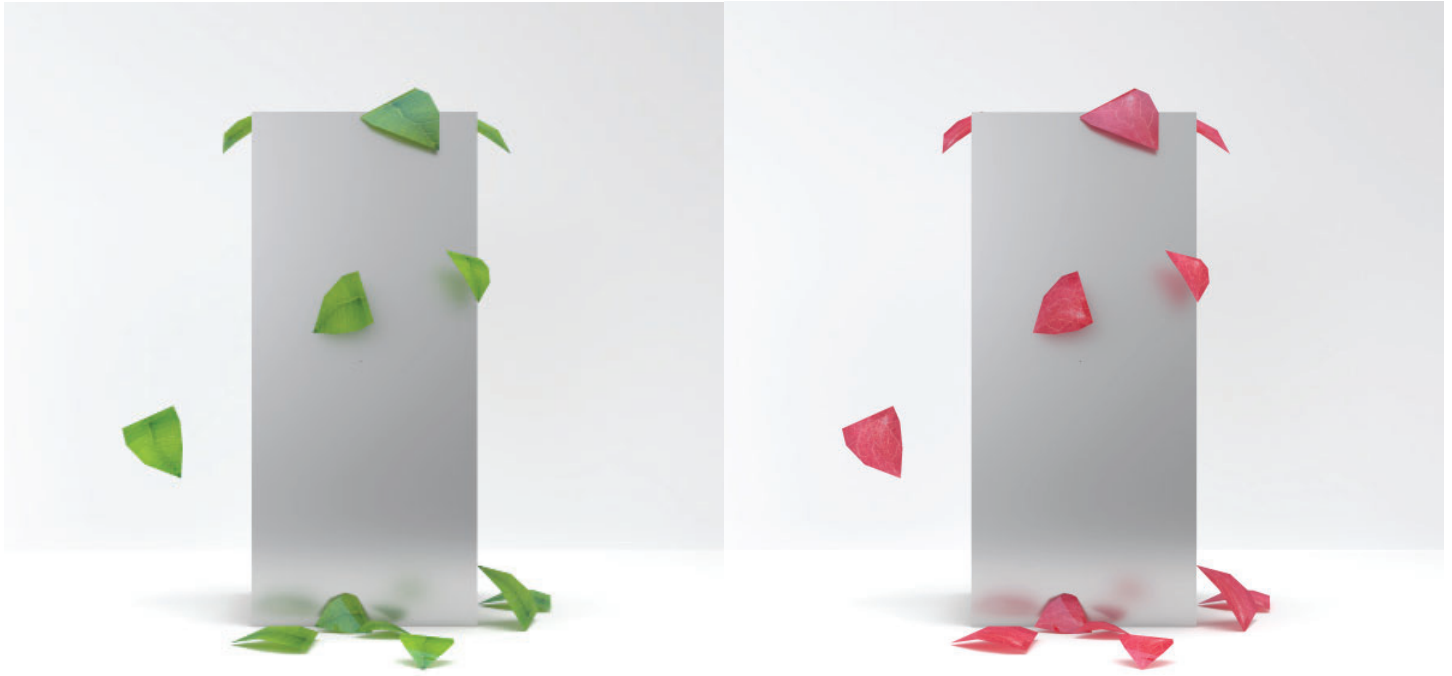


Image 001 - Two Pillars_Logan Miller

A multitude of concepts did not make the final cut, although the ideas that drove their initial existence were still beneficial later down the design road. All of the images and creations alike are moderately explained through words and brief descriptions that accompany each. The use of provocative language is intentional, allowing the reader to input their own interpretations on the meaning of the text without feeling pressured.

A theme surrounding the idea of suffering and suffocation began to arise throughout many of the selected items. The director Ridley Scott, more specifically his prequel movie, Prometheus, played a major role in cultivating the initial stages of expression for Future Histories. The way in which people can be deceived so easily, as well as drawn into a situation through curiosity peaked my interest, ironically. An image with no backstory, no insight, and no real purpose is compelling, intriguing. Questions begin to arise of why it was created, and even more importantly why is it where it is if it indeed has no visible significance? Ideas of doubt begin to trickle into the mind of the guest as they begin to search for a meaning in something that may not have been designed with any intent at all.

An image that did not quite find a home with the rest of the trope fits this description for me, however, not for the author. Sofie Kahn's work is subjective (Image 002), revealing very little about why the art was formed in the first place, allowing the viewer to squabble with themselves internally over why they are here observing it, or why the piece of art is present in the first place.

Many of the other images used were collected from NASA, or other interstellar based concepts. Hassel's New Horizon Project, partnered with Raeburn, provided a realistic approach to how many of the ideas introduced from sci-fi literature could be turned from fiction to reality.

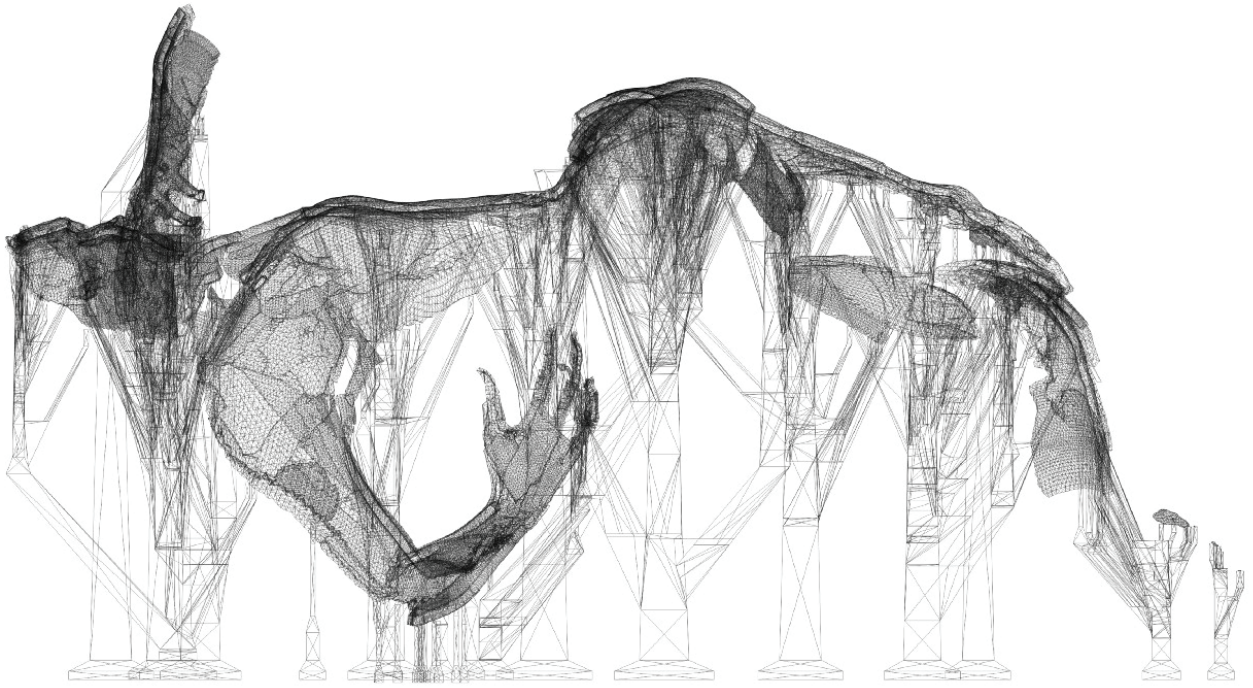


Image 002 - Suffering_Sofie Kahn

Chapter Two

Site and Building Analysis

The architectural design itself is not as important as the story it is meant to tell, or the emotions conjured. However, the physical nature of a mega-structure will always resonate in either a positive or negative manner with the surrounding landscape. Personal interest in how those repercussions might be felt in an extreme environment such as death valley was particularly intriguing. The majority of the initial design process for the superstructure of the architecture came from collecting numerous precedents and fantastical works of futurism. Each of the following images, as well as about a dozen more not included, had a substantial impact on the final outcome of the project.

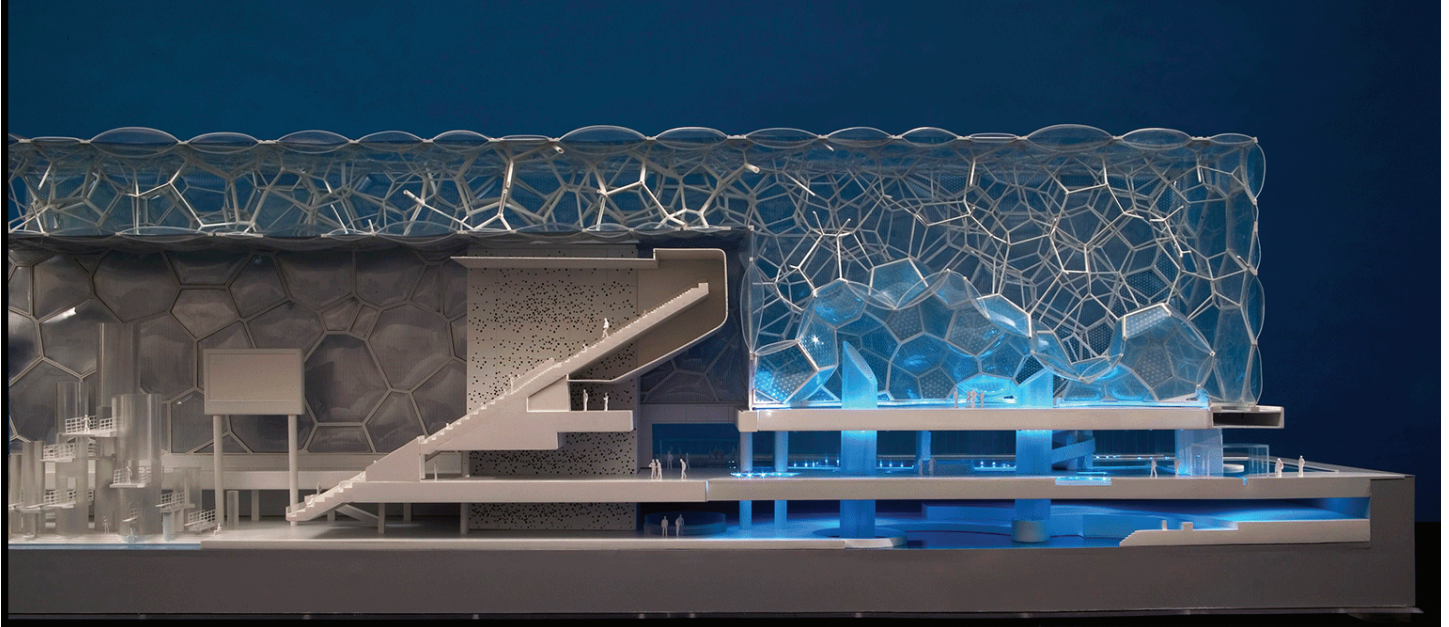


Image 003 - Watercube Model of the Beijing National Aquatics Center_PTW Architects



Image 004 - Piguet Museum_Le Ressort Spiral

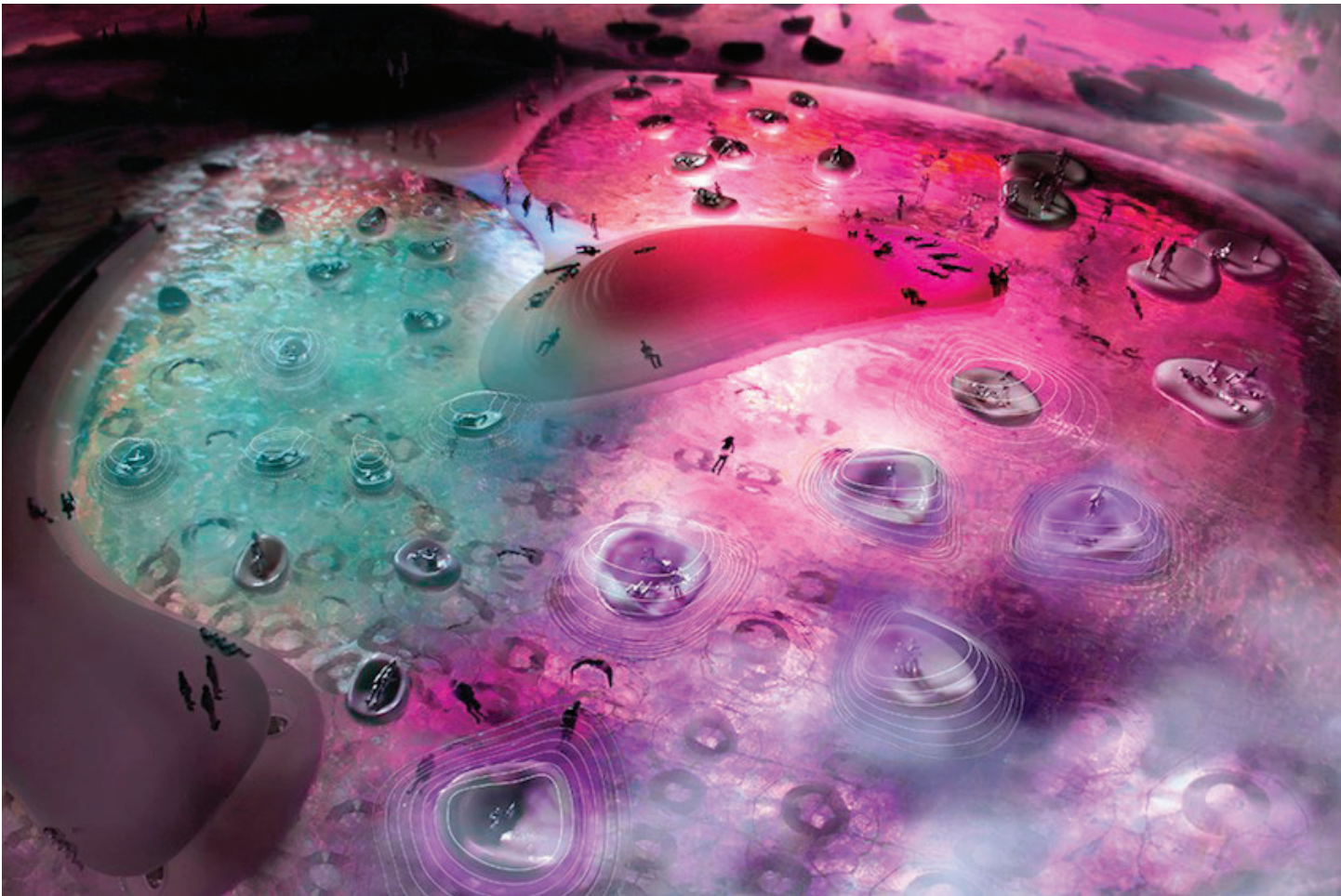


Image 005 - Wanderings_Sean Lally Weathers



Image 006 - Mars Science City_Bjarke Ingles Group



Image 007 - Dune Structure_Magnus Larsson

The National Aquatics Center, designed by PTW Architects (Image 003), offered a calculated approach to a repetitive support system. The parametric design allowed for curious curves and difficult angles to be realized as a physical space. A concept that should hold true to any project, but especially one that is concerned with the future of design and structure.

A more conservative approach to how space can be viewed, from both the interior and exterior, is the Piguet Museum project (Image 004). The spiral form, as well as the depth by which the architecture dips into the landscape, have an effect on the structure and how it is experienced. Due to this, concepts of lowering the Future History structure into the ground were discussed early into the design process. The driving factor being to provide shelter from the extreme conditions in the desert. However, this idea was eventually dismissed for two reasons. The first being that the Bad-water Basin is a national park, ergo, digging deep into the ground is illegal. This, as well as the benefits of submerging the architecture just not having enough of an impact on the overall efficiency of energy consumption. Nonetheless, the Piguet Museum still provided the concept of revealing or removing visible space.

Wanderings, by Sean Lally Weathers (Image 005), was provocative for a simple reason. The gradient of colors used in his images, as well as the theory behind individualized pods creating a community when clustered together. The importance of shared and individual space is critical in a program such as a motel, as the entire premise is built upon strangers mingling for the first and last time.

Bjarke Ingles is a fascinating, and popular visualizer for the future of architecture (Image 006). Any of their projects could have been selected, but the storyline of the Mars Science Center is what stood out to me. The intertwined nature of robots and mankind working together to colonize a distant terrain is fascinating, and has been explored deeply for the past century. This particular image is the first instance of geodesic domes inside of this guide, they will become a reoccurring theme.

Magnus Larson's work (Image 007) is truly an incredible find. At the time that his project was published, he was still a college student. The form is the main aspect of his work that I walked away with, specifically how a weaving structure can support itself through proper engineering and weight distribution.

The early developmental phase of the project was mainly focused on the use of 3D Printing, and how that method of resource management could be properly implemented into a site that does not have many resources to 3D Print from, death valley.

The majority of the form work happened later on, and therefore was not as impactful in terms of establishing the soul of Future Histories. The award winning project of a NASA Mars competition (Image 008), Spacefactory, provided a helpful first step in understanding the logistical side of 3D Printing. Their design combined simple and efficient uses of space in order to maximize the quality of life for future colonists of Mars.

Understanding that the design of Future Histories would also need to capitalize on efficiency in order to maintain a sense of sustainability was a key foundational block.



Image 008 - Mars Habitat _SpaceFactory

Mid-way through the design process, the importance of the automaton grew substantially. The role that machines should play in the design and sustainability of an architecture was in question.

Archigram's Walking Cities (Image 009) is a famous example of what a machine driven world could look like. Modern adaptations such as Mortal Engines have further explored this idea of a mobile land mass. The thought of allowing the Future Histories Motel to roam the harsh desert of death valley was heavily considered, completely transforming the architecture into a modern fabricated deme.

However, much like the dilemma that the Peugeot Museum provided, the benefits to a nomadic piece of architecture were not obviously persuasive. Ultimately, the concepts of interconnecting the machine with inhabitable space was reduced to personalized encounters, with the potential to infect the rest of what the architecture has to offer over time.

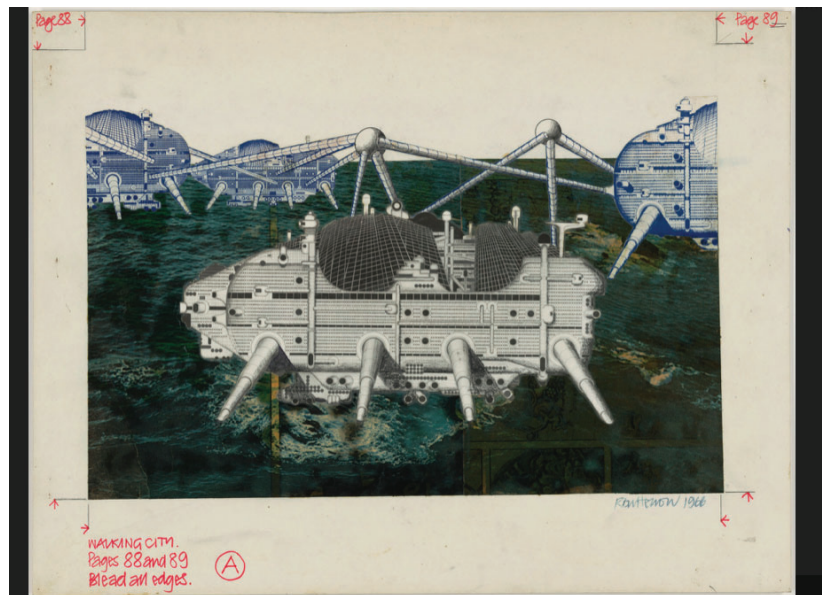


Image 009 - Walking Cities _ Archigram

The later end of the developmental stage for the architectural form saw a resurgence in the importance for 3D Printed spaces. The Martian Habitat by Hassell Architects (Image 010), is a beautiful example of how regolith can be used in a modern design to provide shelter.

The living conditions inside are provided through an inflatable system of pods, with the exterior shell being the only structure formed from 3D printed material. The concept of a pod was derived from this specific project, with the use of a 3D printed shell acting as both a design and structural component.

Fosters and Partners also created a 3D Mars habitat rendition that is worth noting.



Image 010 - 3D Printed Martian Habitat _Hassell

The exploded axonometric of the mega-structure is essential to understanding how the architecture functions. The two Spherical models, Simonsen and Nealy's 1991 iteration (Image 011) as well as a common three hinged geodesic dome section (Image 012) sparked some further ideas for how unique spaces could be used as both inhabitable and structural.

Flare data	Regolith thickness, cm	Predicted dose, rem	
		Cylinder (center)	Sphere (center)
1956	50	7.48	7.04
	100	2.70	2.94
1960	50	1.60	1.90
	100	.16	.23
1972	50	0.25	0.30
	100	.03	.04

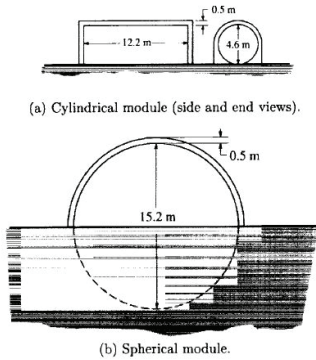


Image 011 - Spherical Model_Simonsen and Nealy

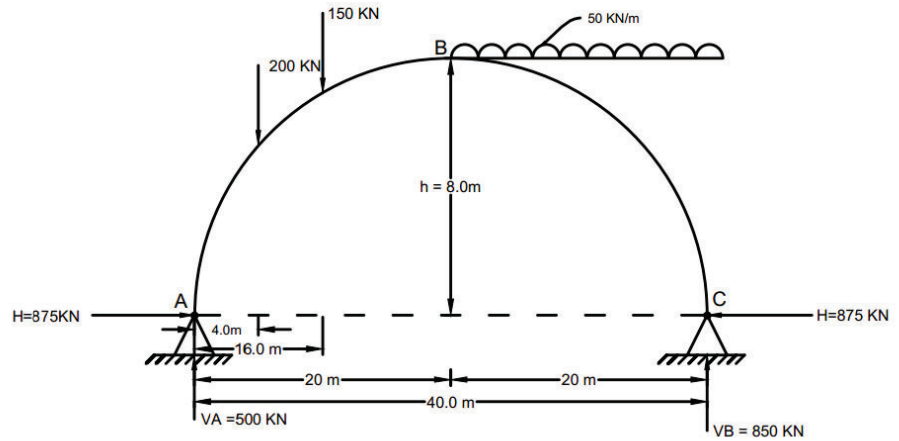


Image 012 - Three Hinged Dome Section_Hove and Gibson

The structural power of a dome is typically used to support itself, but Future Histories began to explore how far the supportive strength of said domes could be used to progress the total efficiency of the entire structure. The forest of columns, shown in the exploded axonometric, as well as the pods themselves, constitute all of the structure needed to support the external plinth (5 on the axon). Utilizing the personal living space as additional units of structural support allows for the designed space to open up. This idea could be multiplied, allowing for all of the support of the upper plinth to come through the structural pods. However, for this specific project, the importance, regarding the narrative, of limiting the capacity to a few guests superseded any such concept.

Tafoni structures heavily influenced the hanging cisterns located at the top of the exterior plinth (6 on the axon). Their design is meant to intersect with the inhabitable space, creating a sense of a cave or an underground environment. This feeling of submersion creates a fascinating shift in emotions when one wanders to the edge of the inhabitable space (3 and 4 on the exploded axon). The sharp contrast of experience as if one is underground to looking out over the mountains is one of the many ways that Future Histories if focused on evoking emotions from those that have the opportunity to experience it.

Transhab systems were explored briefly regarding the design of the pods in order to better understand how to best integrate multiple layers of insulation in order to provide a comfortable living experience in the middle of death valley. The plan for an ESA Planet Surface Simulator (Image 013), as well as the simple plan of Jamestown (Image 014) were both taken into consideration when designing the inhabitable pods. The separation of space within each of the plans is what was important, a single room that could function as many different programs. The simple design of Future Histories' pods allowed for that flexibility, a large space capable of hosting countless memories.

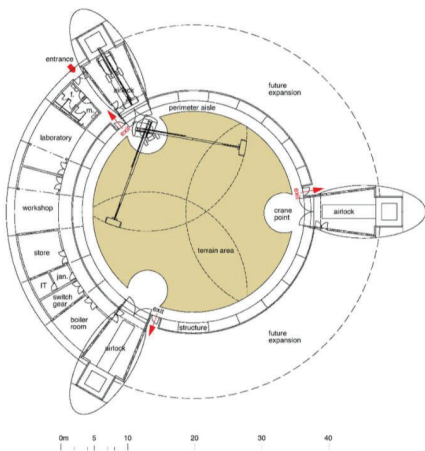


Image 013 - ESA Planet Surface Simulator_Hove and Gibson



Image 014 - Jamestown Base Plan_NASA

Chapter Three

The Narrative

Narratives are written to express a story, to convey a series of emotions towards the audience. Future Histories has always been a story in my head, with the future built environment of death valley giving it a home.

The story is predicated on two separate timelines, each with a nameless protagonist (for the time being). The dichotomy between each of the main characters, and the timelines themselves, provides an immediate sense of intrigue for the reader. The details that are incorporated into the literature all serve a personal function, lightly connecting the author, reader, and characters together through a veil of mystery. The Future Histories Script is a standalone piece, although it does function alongside the additional information presented in both this booklet, as well as the complimentary visualizations.

Cabanon, a collection of short memoirs, as well as Citizens of no Place by Jimenez Lai, were fundamental resources for progressing the Future Histories story. Specifically in the architectural graphic novel Lai Citizens, the chapter Obsession Accelerator proved to be highly influential. A page from the novel is shown below (Image 015).



Image 015 - Obsession Accelerator_Lai Citizens

The direction of Future Histories was tainted by isolationism, rather, the unintended effects of a secluded society of one. Letting unknown mistakes of the past consume the protagonist simplified their emotions for the reader, intensifying the developing bond between text and mind. The script is designed to be short, but rich. The natural desire for the reader to want to consume more content is the intended result, but there is nothing left of the story and there never will be.

The remainder of this chapter explores more moments expressed in the script, visualizations that are better left to the mind of the reader. They are only included here to serve as another means of progressing ones own story, a deposit of early work inspiration.

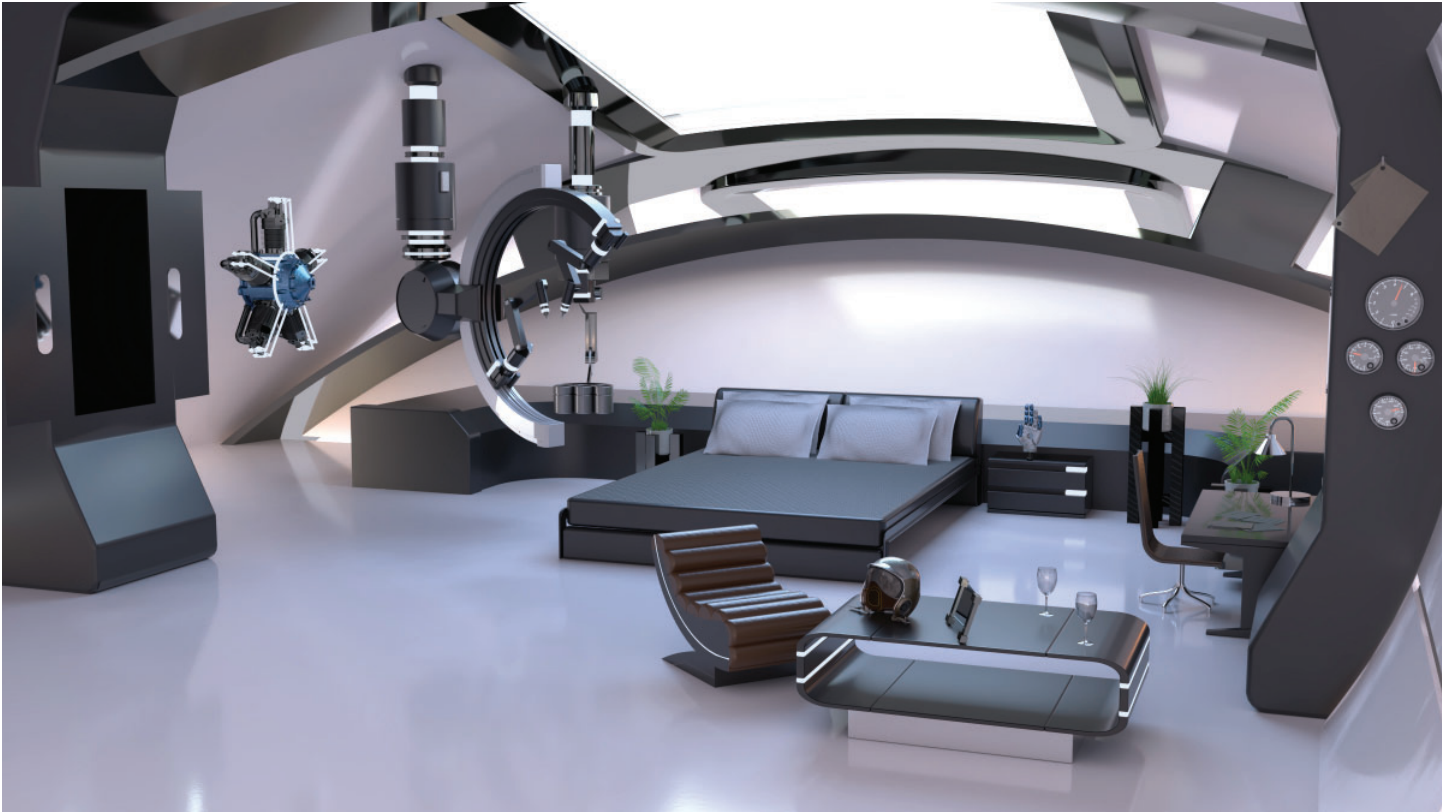


Image 016 - Alternate view of 2042 pod_Logan Miller

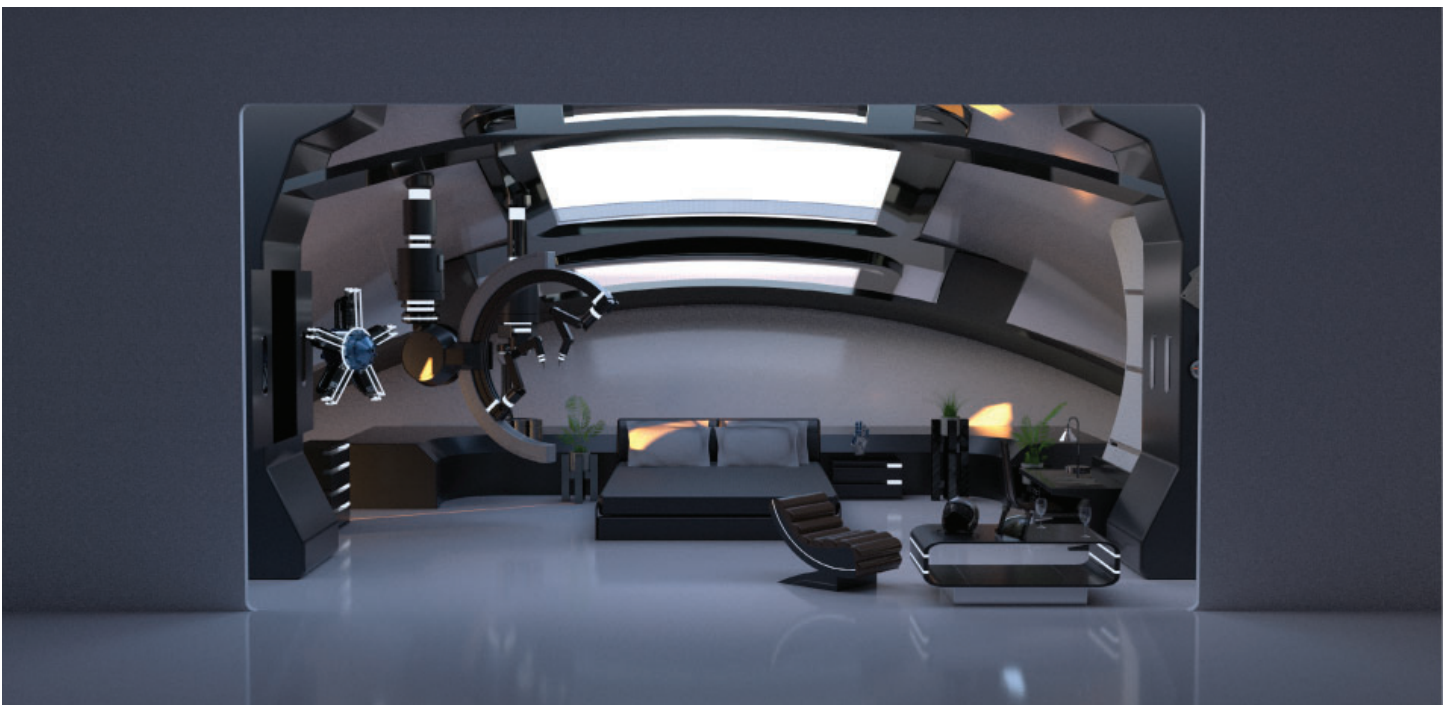


Image 017 - Alternate lighting of 2042 pod_Logan Miller

VISIT DEATH VALLEY



WHERE THE ARMS OF THE SUN
FIND YOU

Image 018 - Advertisement Poster_Logan Miller

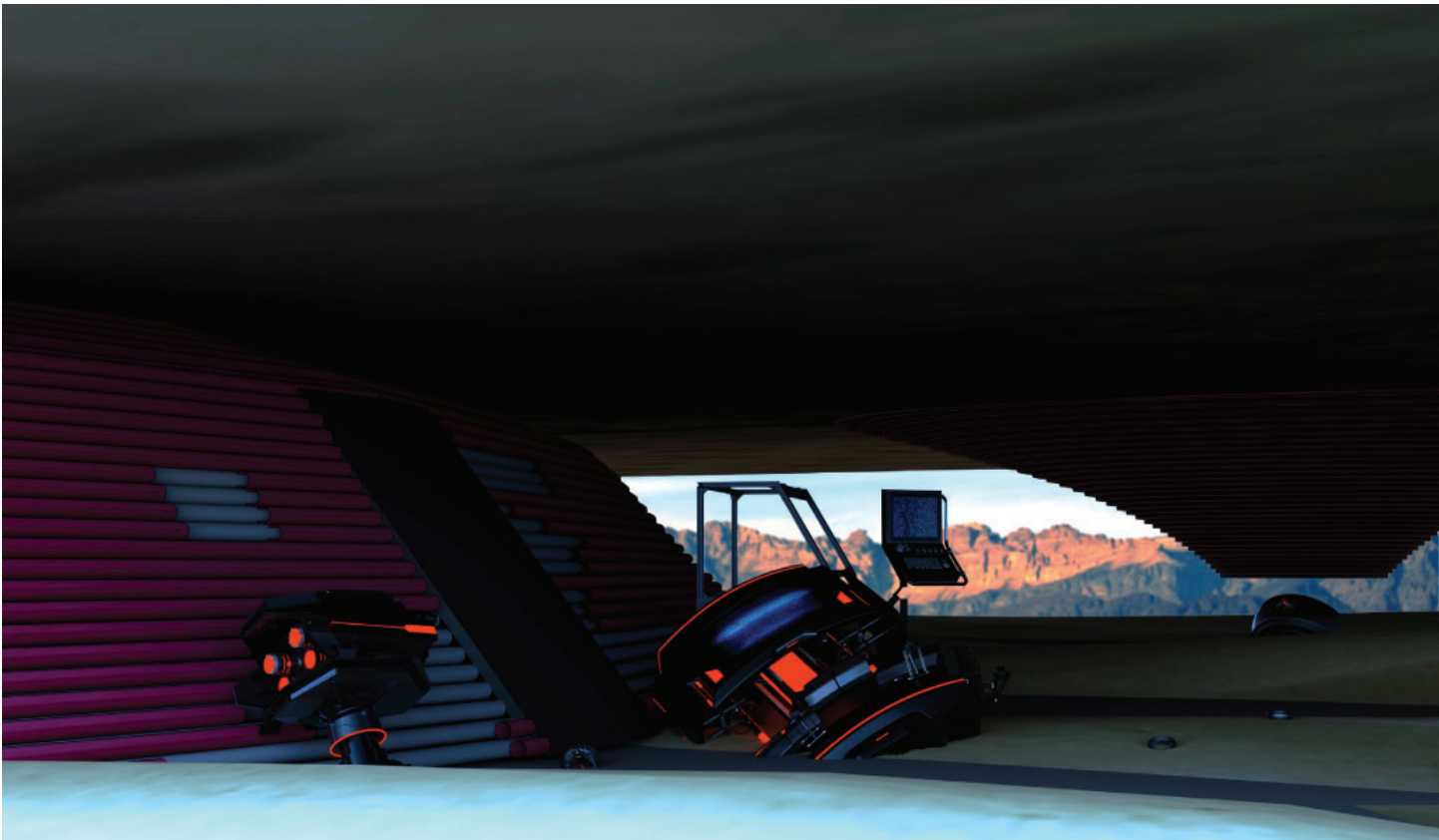


Image 019 - Pod Exterior 2117_Logan Miller

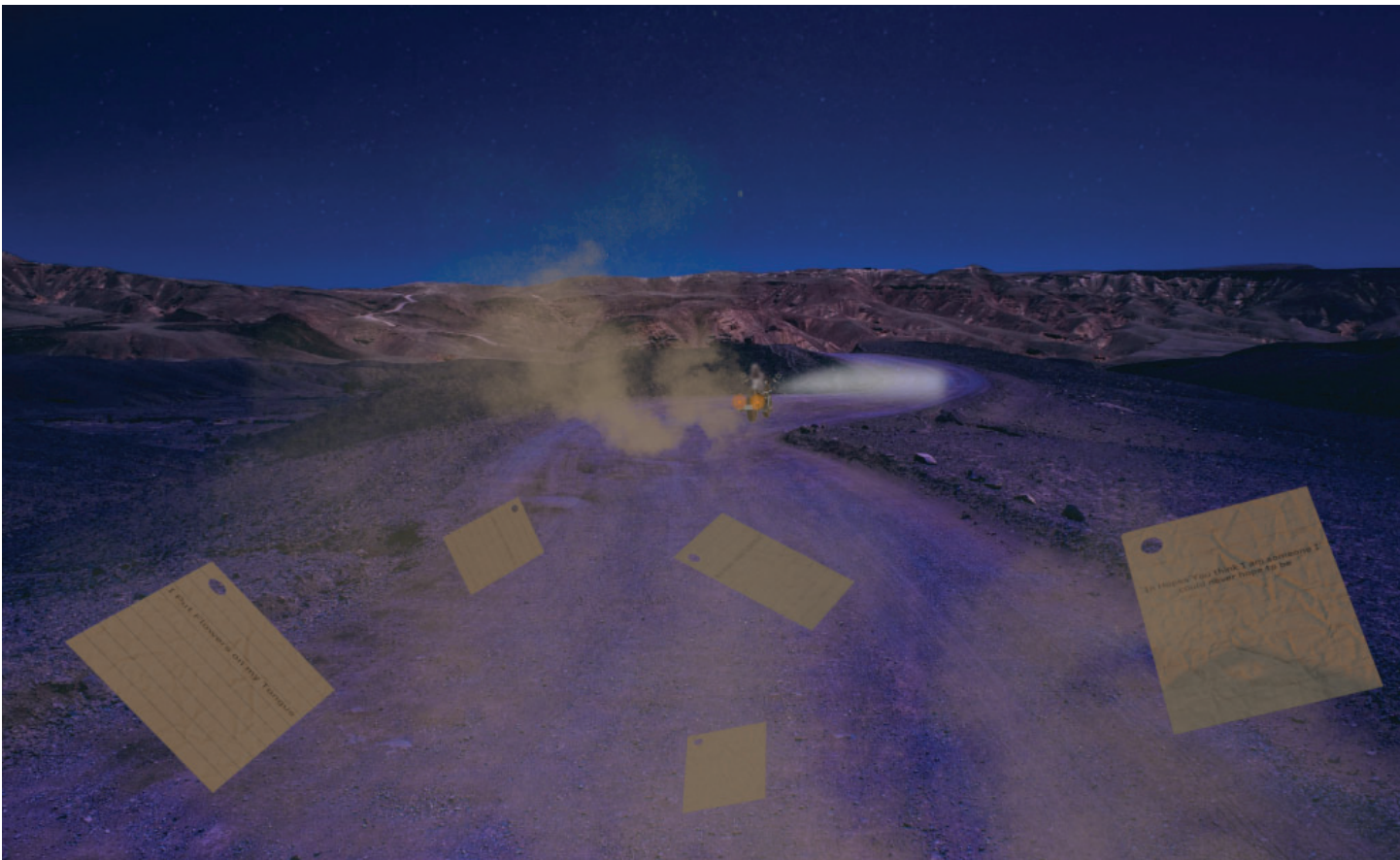


Image 020 - 2042 Letters in the Wind Frame_Logan Miller

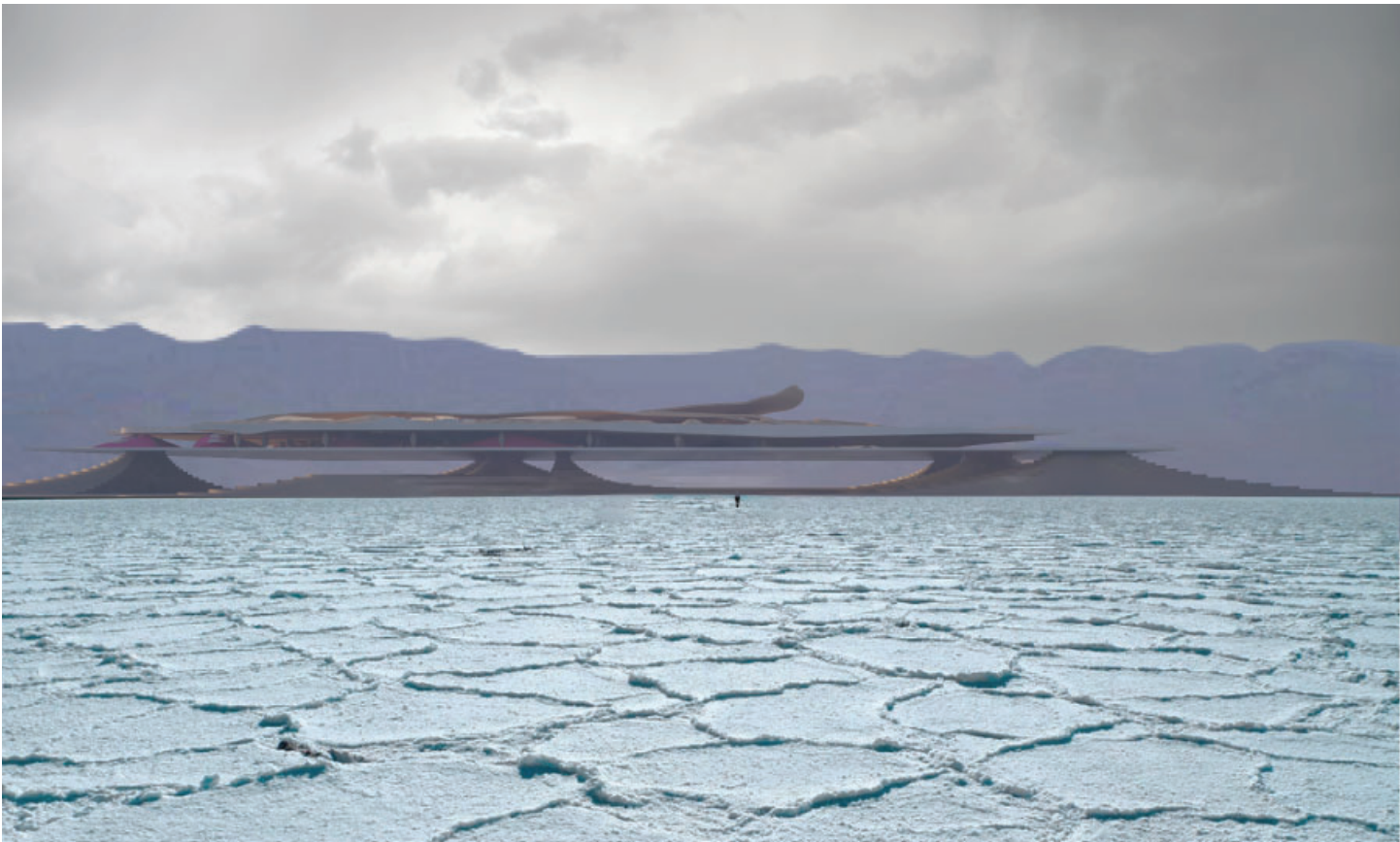


Image 021 - 2117 Scene_Logan Miller



Image 022 - 2042 Watch Frame_Logan Miller

Chapter Four

The Machine

The role of the machine in the future of architecture is undecided, yet promising and dangerous. Each of the designed machines have a servant quality that they are programmed to fulfill, justified through a mathematical approach. Aside from each of the automatons offering a unique visual style to the project, their main reason for fabrication was to provide a service to the architecture, ergo increasing the overall sustainability. The Machine Trope is an excellent visual source to be paired the following information regarding each of the nine machines.

David

The David Automaton was introduced in the year 2033 with the purpose of determining the risk factor for its assigned patron. The fundamental formulas that David used to arrive at a logical conclusion was as follows:

$$\text{Risk} = \text{Hazard/Safeguards}$$

$$R = \{S_i, P_i, X_i\} \quad i=1,2,\dots,N,$$

N= The number of scenarios that we can enumerate

The lead illustrator for prototype 011742115000 stated the importance of such a machine with the following statement. "In analyzing risk we are attempting to envision how the future will turn out if we undertake a certain course of action (or inaction). Therefore, a risk analysis consists of the following questions:

What can happen? How likely is that to happen? If it does, what are the consequences?

Through a comparative analysis of various designs, the relative risks can also be compared and used in order to develop the highest model of efficiency for the future.

Prosthetic Skin

The Prosthetic Skin Automaton was developed in the year 1984 as a primitive stepping stone for virtual technologies and environments. The model seen in Future Histories is a much later iteration that has the capability of altering an individual's experience of the physical environment through extending their sensory, physical, and intellectual capabilities. Future models fully incorporate complete telepresence through an interactive medium. The full capabilities and side effects of prototype 011742115021 are as follows:

- Allows for the body to experience material resistance from afar (familiar and exotic)
- Alienation and disengagement from a longing of nostalgic environments
- Nostalgic use of VT and VE (must be supplemented with exploration of the local landscape)
- The possibility for nature to be captured and bottled in information space
- Short term alleviating psychological and social stresses
- Long term mechanism of maladaptation (failure to adjust to the environment adequately)
- Information as an alienated experience

In the words of a VT and VE forerunner, Michael Heim:

Remote experiences of a physical environment can produce "an apperceptive (assimilating a process to a body of ideas already possessed) quality, that entails proprioception (sense of self movement) and self-awareness."

Shadow C3/Aero

The Shadow C3/Aero is a re-purposed motorbike designed to run away, initially designed in 1998. A simple and effective system of mobility, the bike was predicated under the premise of establishing the modularization philosophy (a machine with a high degree of commonality and a lot of modules or inter-working parts). A vehicle that is simple, reliable, and achieves an economy of scale. The configuration criteria for the remodeling of the motorbike were as follows:

- Provide circulation to all concerned parties
- Provide Egress to all concerned parties
- Provide efficient, utilitarian amount of equipment functional area
- Provide ease of mobility
- Minimize the number of external variations

Project Lazarus

Project Lazarus is a habitat technology system prototype designed in 2042. The machine was meant to be paired with the David automaton in order to reduce the risk of any unlawful events in the place of living. The Project was broken up into three sections, per instructions from the project Illustrator. The three classes are as follows:

- Class 1: Preintegrated, Hard Shell Module
- Class 2: Prefabricated, Surface Assembled
- Class 3: ISRU Derived Structure with Integrated Components

The model seen in Future Histories is a Class Two: Prefabricated and Surface Assembled automaton.

Motile Phosphorescence

Motile Phosphorescence is a retractable high density lamp that is integrated into the substructure of the architecture.

Augmented Projector

The Augmented Projector automaton is another mechanical component fabricated to provide and display detailed information regarding the current habitat status of the local environment, designed in 2023. The machine is capable of processing and relaying extremely complex situations. The most common evaluations are as follows:

- | | |
|--|---|
| Ingress/Egress | Automation and Robotics |
| Storm Shelters (Heat) | EVA Assembly time |
| Thermal Control (Active/Passive) | Optimization of automated systems |
| Resistance to Environment | Quality control and validation |
| Thermal Control | Reliability and Risk Analysis |
| Acoustic Control | Optimization for in situ material utilization |
| Radiation Control | Maintenance procedures and requirements |
| Integrated/ Natural Lighting | Flexibility for reconfiguration/ expansion |
| Local Waste management and recycling | Utility interfaces and logistics |
| Emergency Systems | Evolution system upgrades and changeouts |
| Psychological and social factors | Tribology Studies |
| Chemical and Electrical Process Operations | Technology Development requirements |
| | System design optimization and analysis |

Automaton Archetype

The Automaton Archetype is a distant future piece of machinery, initially developed in the year 2115. The project Illustrator for this prototype was fixed on pushing the boundaries of robotics and their assistance to the public. His vision was released in a statement when the Archetype debuted on February 21st.

“Robots can obtain highly detailed information about the environment that would elude human senses (Radar, infrared, and gamma-ray).

Robots do not need food or shelter, clothing, or supplies - no waste.

They are not bothered by isolation and confinement or other psychological stresses.

There is no need for them to return to another location.

Not subjected to illness and can work together through a neurological network.

Machine Vision offers a form of telerobotic sight through the creation of immersive environments that enable humans to better assess situational conditions and analyze images of remote locations through the use of highly complex tools and anthropomorphic designs.

The role of social purposes, rich and affective interchanges will become increasingly important as robots begin to enter into long term relationships with people.

Assuming the roles of caretakers and companions, as well as forming feelings of attachment and affectionate behaviors.”

Reality Fabricator

The reality Fabricator is a state of the art automaton released in 2042 that was programmed to reveal the secrets of the future. The information revolving around the lead designer, the precursor Illustrator, is a hazy, leading many to believe that the machine in fact changes the course of time rather than prophesying it. The information displayed was categorized in three different subsets:

Immediate Future (10-30 years):

Habitat architecture needs to be designed for challenging conditions

Cyber technologies will take on the form of external prostheses

Ideas of somatic gene therapy to biologically reform the body to the environment

Robots to function as limited autonomy and be extensions of the operator

Near Future (30-50 years):

VE and VT Technologies gain in sophistication, more immersive

Genetic engineering through somatic technologies evolve the body (fabricated evolution)

Eliminates the burden of the habitat to protect the inhabitants

Social interaction androids introduced into the community

Distant Future (50+ years):

Germline Therapies through android assistance (external birthing)

Diminishing ontological gap between humans and robots

Introduction of Artilects - complete autonomy

Engineered terraforming interventions by cyborgs diminishing boundaries between virtual and realistic experiences

Biosynthetic Habitat Architecture (Biogenerative structures)

Buildings operating as a living organism (self healing and repair)

Morphology of structure will become a natural process dictated by the architecture itself

Complete integration between human life and the surrounding context

Opis Chronograph

The Opis Chronograph was re-purposed in 2023, initially crafted in the late 1900's as a simple wrist watch. However, the trinket failed to correctly tell time, and as such was devolved into a device designed to measure the rate at which population density was decreasing. The aspect of time was still vital to the success of the machine, with the lead Illustrator for Prototype 011742115323 stating:

“The degree of visual openness of a habitat may be separated from the structure itself;
It is possible to divide an open geometry into visual subsections,
and to provide visual horizons in a variety of ways.”

Future Histories was a beautiful project, built on concepts of potentially lost emotions and memories. The opportunity to work in an extreme environment, and to visit in person, was extraordinary. Allowing the physical nature of the design to take a backseat to the literary narrative permitted the project to weep with individuality. Truly a unique design altered through precarious bits of inspiration, Future Histories will have a lasting impact on all of my future aspirations and design strategies.



Bibliography

Images

Image 001 - Miller_Logan

Image 002 - Glassman, A. (2019, March 22). Unstable object; In Corpore Sano presents Sophie Kahn. Medium. Retrieved January 29, 2022, from <https://medium.com/the-operating-system/unstable-object-in-corpore-sano-presents-sophie-kahn-f62c1eb41c9a>

Image 003 - Digital, C. (n.d.). Watercube – National Swimming Centre. PTW. Retrieved January 29, 2022, from <https://www.ptw.com.au/project/watercube-national-swimming-centre>

Image 004 - Audemars Piguet Founders House. (2017). Le Ressor Spiral. In Big - hot to cold (pp. 508–522). essay, Taschen.

Image 005 - Admin. (2019, March 26). Wanderings. Sean Lally Architecture Sàrl. Retrieved January 29, 2022, from <http://seanlally.net/2019/02/27/wanderings/>

Image 006 - McGuirk, J., Nahum, A., Watson, E., Bjarke Ingles Group. (2019). Thrive. In Moving to mars: Design for the Red Planet (pp. 196–197). essay, Design Museum Publishing.

Image 007 - Bldgblog. (2022, January 29). Dune: Arenaceous anti-desertification architecture. Flickr. Retrieved January 29, 2022, from <https://www.flickr.com/photos/bldgblog/sets/72157612777908074/detail/>

Image 008 - Sketch.inc, Shovava, Day, T. is A., Comma, Colorsheets, V. (2018, August 1). NASA selects competition winners of 3D-printed habitat designs for Mars. My Modern Met. Retrieved January 29, 2022, from <https://mymodernmet.com/nasa-3d-mars-habitat-contest/>

Image 009 - Archigram Walking City. (n.d.). Retrieved January 29, 2022, from <https://archigramwalkingcity.weebly.com/>

Image 010 - Digital, C. (n.d.). NASA 3D Printed Habitat Challenge. Hassell. Retrieved January 29, 2022, from <https://www.hassellstudio.com/project/nasa-3d-printed-habitat-challenge>

Image 011 - Howe, A. S., Sherwood, B. (2009). Out of this world the new field of Space Architecture. American Institute of Aeronautics and Astronautics, Inc.

Image 012 - Benaroya, H. (2018). Building habitats on the Moon: Engineering Approaches to Lunar Settlements. Springer. (p. 198)

Image 013 - Howe, A. S., Sherwood, B. (2009). Out of this world the new field of Space Architecture. American Institute of Aeronautics and Astronautics, Inc. (p. 374)

Image 014 - Jamestown US Moon base in Season 1 of “for all mankind” TV series: Jamestown, Alternate history, space exploration. Pinterest. (n.d.). Retrieved January 29, 2022, from <https://www.pinterest.com/pin/587719820123451264/>

Image 015 - Lai, J. (2012). Chapter 5: Obsession Accelerator. In Citizens of No Place: An Architectural Graphic Novel (p. 74). essay, Princeton Architectural Press.

Image 016 - Miller_Logan

Image 017 - Miller_Logan

Image 018 - Miller_Logan

Image 019 - Miller_Logan

Image 020 - Miller_Logan

Image 021 - Miller_Logan

Image 022 - Miller_Logan

Bibliography

Additional Texts

- Audemars Piguet Founders House. (2017). *Le Ressort Spiral*. In *Big - hot to cold* essay, Taschen.
- Benaroya, H. (2018). *Building habitats on the Moon: Engineering Approaches to Lunar Settlements*. Springer.
- Häuplik-Meusburger Sandra, & Bannova, O. (2018). *Space Architecture Education for engineers and Architects Designing and Planning Beyond Earth*. Springer International Publishing.
- Herbert, F., Herbert, B., Anderson, K. J., Allén, R., & Martín Patricia. (2020). *Dune: The graphic novel*. Abrams ComicArts.
- Howe, A. S., Sherwood, B. (2009). *Out of this world the new field of Space Architecture*. American Institute of Aeronautics and Astronautics, Inc.
- Jacobson, R. C. (2020). *Space is open for business: The Industry That Can Transform Humanity*. Robert Jacobson.
- Lai, J. (2012). Chapter 5: *Obsession Accelerator*. In *Citizens of No Place: An Architectural Graphic Novel* (pp. 63–75). essay, Princeton Architectural Press.
- Lally, S. (2014). *The air from other planets: A brief history of architecture to come*. Lars Müller Publishers.
- Lockard, E. (2016). *Human migration to space: Alternative technological approaches for long-term adaptation to extraterrestrial environments*. Springer.
- McGuirk, J., Nahum, A., Watson, E., (2019). In *Moving to mars: Design for the Red Planet*. essay, Design Museum Publishing.
- Monchaux, D. N. (2011). *Spacesuit: Fashioning Apollo*. The MIT Press.
- O'Neill, G. K. (2000). *The High Frontier: Human Colonies in Space*. Apogee Books.
- Pyle, R. (2019). *Space 2.0: How private spaceflight, a resurgent Nasa, and international partners are creating a new space age*. BenBella Books, Inc.