National Parking

by

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in Partial Fulfillment of the Requirements for the Degree of
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Abstract

The mobility afforded by the rise of the information era solicits a re-examination of possible modes of mobile living.

Mobility has always been closely tied to American life. Westward expansion defined United States history until the frontier was declared closed in the 1880s. Frederick Jackson Turner argued that the frontier was more than just a geopolitical factor—it made Americans fundamentally different from Europeans. “No matter how rapidly cities on the Atlantic coast expanded, he argued, Americans could find a "perennial rebirth" on the frontier, "the meeting point between savagery and civilization."

However, the close of the frontier produced an epochal shift in the American psyche. The National Park System was born, “setting aside by-passed land to remain wilderness in perpetuity, simulating the Frontier and thereby allowing Americans to renew themselves as they had before.”

The RV, a hybrid between vehicle and architecture, has evolved as an exceedingly popular apparatus for this American pursuit of renewal.

Robert Sumrell and Kazys Varnelis argue that “if the frontier was a place of production, the perpetual wilderness of the national park is a place of consumption. Nothing can be produced there except the renewal of Americans through recreation.” Can we re-frame the domestic potential of the RV to engage with an architecture that redefines sections of the American landscape not as amenities for solely recreation consumption but also as amenities of production?

Supervisor: Joel Lamere
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Table of Contents

13  Mobile America
2   Snowbirds
21  AirbRV
27  Bonneville Salt Flats
35  Generic Infrastructure
37  Lot’s Wife
65  Redwood Experimental Forest
73  Shed Wood
75  White Mountain National Forest
81  Constructive Extraction
91  Appendix
A Map of The Frontier of British North America, and the United States

Source: davidrumsey.com

Looking Down Yosemite-valley, Albert Bierstadt, 1865

Source: wikimedia commons
Mobile America

The mobility afforded by the rise of the information era solicits a re-examination of possible modes of mobile living.

Mobility has always been closely tied to American life. Westward expansion defined United States history until the frontier was declared closed in the 1880s. Frederick Jackson Turner argued that the frontier was more than just a geopolitical factor – it made Americans fundamentally different from Europeans:

The wilderness masters the colonist. It finds him a European in dress, industries, tools, modes of travel, and thought. It takes from him the railroad car and puts him in the birch canoe. It strips off the garments of civilization and arrays him in the hunting shirt and the moccasin. It puts him in the log cabin of the Cherokee and the Iroquois and runs an Indian palisade around him. Before long he has gone to planting Indian corn and plowing with a sharp stick; he shouts the war cry and takes the scalp in orthodox Indian fashion. (1-4)

The American landscape may have been forever changed by the arrival of the European settler, but the settler to was changed. “No matter how rapidly cities on the Atlantic coast expanded, he argued, Americans could find a “perennial rebirth” on the frontier, “the meeting point between savagery and civilization.”

However, the close of the frontier produced an epochal shift in the American psyche. The National Park System was born, “setting aside bypassed land to remain wilderness in perpetuity, simulating the Frontier and thereby allowing Americans to renew themselves as they had before.” (Sumrell, Varnelis)
The RV, a hybrid between vehicle and architecture, has evolved as an exceedingly popular apparatus for this American pursuit of renewal. One in ten vehicle owning American households owns one.

Robert Sumrell and Kazys Varnelis argue that “if the frontier was a place of production, the perpetual wilderness of the national park is a place of consumption. Nothing can be produced there except the renewal of Americans through recreation.” Can we reframe the domestic potential of the RV to engage with an architecture that redefines sections of the American landscape not as amenities for solely recreation consumption but also as amenities of production?
Snowbirds

There is already a large population engaged in a semi-nomadic lifestyle within the United States. Every winter, hundreds of thousands of Snowbirds, retirees who have given up their permanent homes to live in RVs, descend on Quartzsite Arizona.

Their mobile nature allows them to produce ephemeral communities as well as higher order organizations of space. Varied configurations can produce a myriad of communal private spaces as well as public spectacle.

However, the Snowbirds are a product of a generation who could rely on things such as Social Security to afford their nomadic lifestyle after retirement. Given our present employment difficulties and foreclosed American dreams, a new generation is looking to RVs.

Tynan Smith, a 32-year-old tech entrepreneur, lives in what he considers his dream Castro district apartment. He’s got marble counters, hardwood floors, a cedar closet and gold leaf ceiling. He doesn’t have a roommate. And at $500 a month, you can’t beat the rent.

Tynan is one of many young SF professionals choosing to live in RV instead of falling victim to the over inflated and unaffordable rental market. The RV not only allows them to live in San Francisco financially but brings with it what they describe as the benefits of simplicity, efficiency, and a sense of adventure.
RV Configuration Studies
AirbRV

The American dream that died with the foreclosure crisis was one that relied on the growth of equity through real estate ownership. Taking cues from recent trends in “shared” domesticity such as services like airbnb, AirbRV seeks to explore new multi-user RV typologies in a search to produce new non-real estate based methods of equity production. In this case, the interior of a single trailer unit is mirrored to produce a multi-unit situation commonly found in a duplex. Renting the second unit on Air BnB has the potential to produce a sizeable secondary income for the owner. The unit can also engage in a new mobile bed and breakfast market, taking guests from National Park to National Park and everywhere in between.
Airstream Duplex Model
Site Models: Redwood Experimental Forest, Bonneville Salt Flats, White Mountain National Forest
Bonneville Salt Flats

The Bonneville salt flats sits at the border between Utah and Nevada. Its natural geology produces extremely unique conditions for both the production of recreation and the production of raw material goods.

The flats are public land managed by the Bureau of Land Management and are divided by the Lincoln Highway which runs East/West from Salt Lake City, Utah to the East and Reno, Nevada to the West. The highway also divides the aforementioned forms of production.

To the north, the Bonneville Salt Flats are home to the annual pursuit of land speed records with “Speed Week” held at the Bonneville Speedway. The event draws hundred of drivers from all over the world with dreams of setting their own speed records. The Bonneville Speedway is home to numerous land speed records specifically because of its unique natural landscape - the flats flood during the winter dissolving the naturally occurring salt from the surrounding geology. In the spring as the water evaporates, precipitation produces a perfectly flat salt crust, ideal for racing.

To the south, Intrepid Potash produces 95000 tons of Potash salt per year from its 8000 acres of evaporative salt ponds. Over five billion gallons of brine are pumped into the solar pond system each year. As the brine becomes saturated with potash, it is transferred through a series of smaller evaporation ponds in to harvest ponds. When the ripened brine finally reaches the harvest ponds, the ore (a combination of salt and potash) precipitates onto the pond floor. The remaining brine in the harvest ponds is removed and the ore is harvested and transported by elevating scrapers to the mill for processing. In an effort to appease the land speed enthusiasts fears of salt disappearance, Intrepid pumps millions of gallons of salt rich brine back into the salt flats.
Loft Wīfe Winter Condition
95,000 tons of potash produced annually
RV Specifications
Generic Infrastructure

The RV as a typology exists as a result of the opportunistic engagement with the nation-wide utilitarian road infrastructure. Highway systems initially constructed for the distribution of goods and services across the country became the outlets for Americans seeking recreation and rejuvenation through engagement with the American landscape. The RV in its dimensions and operations are therefore directly defined by those of the road infrastructure.

While the design of the RV is dictated by the road, the design of the RV park is dictated by the RV. The road is always linear in form due to its relationship to vehicle trajectory while the trailer park is a little more free in its manifestation. The unique nature of Bonneville Salt Flats allows for vehicles to travel with any vector similar to the desert at Quartzsite where the open plane situation allows for free association between RVs.

The RV park design for Bonneville Salt Flats attempts to maintain the freedom of user defined inhabitability by producing a generic field condition infrastructure. A three axis grid sized to the RV turning radius proved to allow for the most unimpeded axis of travel within the structure and allow for relative ease of turning.
Lot’s Wife

The RV park design for the Bonneville Salt Flats site attempts to achieve several goals: engage, expose, educate and innovate with the local context of raw material production, maintain the autonomous RV user configuration potential of the salt flats, produce architecture that helps mediate the harsh environmental conditions found on the flats.

While the generic infrastructure grid of Lot’s Wife maintains the user autonomy within the field condition, the structure of the design attempts to engage both the exposure of the local industrial raw material production processes while simultaneously producing shelter from the environment. Leftover brine from the potash ponds is pumped to the site and into a network of delivery tubes. These tubes are connected to a series of pneumatic actuators which when activated allow brine to flow up through the structural columns and dispersed across a steel mesh roof canopy. The actuators are triggered by the weight of the parked RVs and so the evaporative growth of salt crystals on the mesh roof is directly determined by inhabitation. Time and quantity are both factors then which determine the size and density of the salt shade structure produced. Then as the dry season comes to an end, the salt can either be harvested from the roof by the users, or it dissolves back into the flats as the wet season returns.

Potash is primarily used in the production of fertilizers, so an added program to the scheme is a hydroponic and aeroponic research facility. Here the latest experiments in low resource agriculture production can be tried out by the diverse RV demographic, creating a mixing pot of fresh perspectives and innovation.
Model: Lots Wife
Redwood Experimental Forest

The Redwood Experimental Forest at Yurok, California, was established in 1940 to study the silviculture of coast redwood and to develop techniques for regeneration and management. Redwood is located on the coastal front of the northern coast ranges in northern California, about 1.5 miles inland from the Pacific Ocean and near the mouth of the Klamath River. The Redwood includes 379 ha drained by High Prairie Creek. Redwood is the principal forest species on the forest, with Douglas-fir, Sitka spruce, western hemlock, and Port Orford-cedar making up the remainder. About 59 percent of the timberland is classified as Site I and 35 percent is classified as Site II. Tree ages range up to 1,200 years. Topography varies considerably over the forest. Slopes range from 0 to 75+ percent, and elevation ranges from 130 to 1,115 ft.

About 45 percent of the total area (226 of 502 ha) was clear-cut in harvest units ranging from 1.2 to 62.7 ha between 1956 and 1985. About 1 percent (4 ha) was harvested in 1981 using the selection system. An additional 23 percent (87 ha) is available for approved manipulative research studies, and 16 percent (61 ha) is preserved in an undisturbed old-growth redwood forest condition in the Yurok Research Natural Area (RNA) established in 1976.
Site Model: Redwood Experimental Forest
Basic Lumber Curing Structural Unit
Shed Wood

The intent behind the Redwood national forest design is to again create a structure that engages and exposed local raw material production and the use of that material. In this case the material is lumber. Much like the Swiss Sound Box, the structure is made of stacked raw timber. In this case however the timber is rotated around a central tension cable which holds the stack together. This rotation allows for openings in the facade of the wood shed while maintaining the typical lumber curing setup. As the wall panel lumber becomes ripe it is removed from the structure for use as fresh green lumber is stacked at the other end. In this way the structure moves its way around the RV park at a slow and steady pace. The top timbers in each stack produce coincident lines which allow for a rolling roof truss track. Under this roof campers can learn traditional and modern day wood craft and fabrication techniques.
White Mountain National Forest

The White Mountain National Forest is a federally managed forest contained within the White Mountains in the northeastern United States. It was established in 1918 as a result of the Weeks Act of 1911; federal acquisition of land had already begun in 1914. It has a total area of 750,852 acres. Most of the White Mountain National Forest is in New Hampshire; a small part (about 5.65% of the forest) is in the neighboring state of Maine. While often casually referred to as a park, this is a National Forest, used not only for hiking, camping, and skiing, but for logging and other limited commercial purposes. The White Mountain National Forest is the only National Forest located in either New Hampshire or Maine. Most of the major peaks over 4,000 feet high for peak-bagging in New Hampshire are located in the National Forest. Over 100 miles of the Appalachian Trail traverses the White Mountain National Forest. In descending order of land area the forest lies in parts of Grafton, Coos, and Carroll counties in New Hampshire, and Oxford County in Maine.
GEOLOGICAL MAP
OF
NEW HAMPSHIRE AND VERMONT
BY C.H. HITCHCOCK
1877.
The White Mountain National Forest is an ideal location for a quarry intervention due to its geology. It sits on a vein of granite similar to that found at the famous Rock of Ages Corporation’s E.L. Smith Quarry (pictured below) in Barre, Vermont, the world’s largest “deep hole” granite quarry.
01 Development and preparation of production area

02 Wiresawn surface

03 Clearing of facing surface

04 Prepare to extract quarry block after clearing surfaces

05 Setup of quarry block size

06 Drill holes to thread diamond wire

07 Insert diamond wire to form a loop and prepare to saw

08 Plunge cutting using high speed water to cut base of quarry block

09 Cutting the sides of quarry block

10 Large quarry block is cut into smaller blocks

11 Legs out the small blocks into even smaller blocks for transporting

12 Block layout to set up the final block size

Stone Extraction Process
Constructive Extraction

The tools and methods of the stone quarry have evolved over the years allowing quarry operators to be increasingly precise in defining the material for extraction. Diamond wire saws cut cleanly through granite and marble leaving clean flat surfaces not only on the stone blocks destined for the global market but also on the quarry walls.

The proposal for the White Mountain National Forest seeks to use these extraction industry practices opportunistically to simultaneously produce in-situ architecture simply by re-calibrating the standard raw material extraction. By taking into account the resultant form of the quarry, inhabitable space can be defined and carved into the stone. In this way, the process of extraction is not only productive in its production of raw materials but also productive in its construction of built environment.
Model: Rock n Roll
Appendix
Randus Rail Ubiquitous infrastructure
Sketch Collage Proposals
Context and Precedent
"Millennials Forge Fresh Trends in Home Buying"

"The housing bubble might have been one catalyst that contributed to the financial system imploding in 2008 which led to more than a million people losing their homes, but the American dream of homeownership is alive and well among Millennials, experts say."

"Gen Y is finally in a mood to buy (houses)"

"80.9% of a recent gen Y survey indicated plans to buy a home in the future."

"Gen X And Gen Y Wealth Stagnates"

"Real Unemployment Rate: For Millennials, it's a Crushing 16%, and Getting Worse"

"There's not that different from their parents, except they're not as wowed by luxury and are more likely to demand technology and flexible space."

Context and Precedent
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Bibliography


