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Information in Formation: Cognition Inspired Objects and Furniture

by Katherine Marsh

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Fine Art in Furniture Design

School of American Craft
College of Imaging Arts and Sciences

Rochester Institute of Technology
Rochester NY
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Committee Approval

Richard Tannen
Chief Advisor

Date

Andy Buck
Associate Advisor

Date

Jane Shellenbarger
Associate Advisor

Date

Robin Cass
Chairperson

Date
I. Abstract

For this thesis, I intend to identify subject matters that reflect my interpretation of modern, relevant accounts about the world. Through research into the chosen subjects, I will gather related data and observations. This information will be processed to formulate relationships and narrative. Such graphic displays of information for these stories will be my inspiration. My interpretations will be further realized visually through my design process. Archetypes of the proposed furniture or object will be chosen based on the potential relationship between them and the chosen narrative topic. Visual abstractions and patterns will emerge from inspiration derived from the topographical depictions or visualized data. The outcome will be a body of work that includes functional objects that depict a deeper context communicating topical narratives and connections through multi-dimensional data visualization. My goal, for the resulting pieces, is to stimulate mindful serviceability as the user engages with a utilitarian object.

Thematic cartographies document information and reflect our perceptions of the world we inhabit. Furniture and objects can be embedded with narrative and become tools of such communication. In addition to utility and narrative, furniture also speaks about the identity of the person who chooses to buy and live with it. Similar to fashion choices in clothing or accessories, furniture can express our social status, worldly viewpoints and individual or group ideologies. Furniture and household items can serve a conventional function and simultaneously impart added context to it’s intended utility, interaction or activity. This supplementary context elevates our connections with the object, the world and those around us.

Human beings have recorded stories, relayed instruction, and transferred knowledge since our primitive beginnings. Images and language have chronicled information, history and legend. Initially, graphic visualization was presented as geometric diagrams to record such things as the positioning of stars for navigation or maps documenting early exploration. In previous centuries, documenting the exploration of the world was the prominent cartographic topic-du-jour. I believe the current, post-industrial revolutionary counterpart is the story about our utilization and consumption of this very same world.

With my furniture pieces, I hope to bring these realizations into our daily consciousness through functional objects that panegyrize the natural resources we utilize. By incorporating geographic formations and research data into dimensional forms, I hope to spark a consciousness about our relationship and interactions with the planet and it's other inhabitants. Using handmade objects as a universal form of communication, I intend to expose unseen narratives while challenging the ways in which we understand the world around us.
II. Discussion of Sources and Research

Increasing consumption, urbanization, industrialization and a growing human population are modifying the Earth's surface. Natural resources are used to fulfill our needs and desires – from the on-demand electricity that lights our homes to once-seasonal foods now available in mass throughout the year. Without a second thought, we flip on the lights to enter a dark room, run a faucet to fill a glass with fresh water, or lift a fork full of spaghetti to our lips. How often do we consider the effects that even our smallest actions have on our Earth? Our personal actions in relation to the larger systems that exist to fulfill our desires are the accounts that I began to research for conceptualization.

Upon examination of several topics, I chose to concentrate on the components of our underlying, modern day food system and the deep history that brought us to this point.

Our first human societies were based on a hunter and gatherer culture that existed exclusively on the use of available natural resources. As populations prospered, so did the necessity of larger amounts of food to support burgeoning communities. Agriculture became a necessity with the growth of civilization and the creation of cities. With the development of agriculture and the domestication of animals, humans transitioned into a production model. The relationship between man to land and man to nature changed. A separation, both physically and mentally, between humans and nature was beginning.\(^1\) With these new relationships, human societies stopped adapting to the environment and began transforming it. Sometimes this meant changing the landscape as well.

Food, originating from plants and animals, is often associated with the idea of nature or the natural. However, the pathway to our plates is primarily artificial. As humans, we have distinguished ourselves from animals by eating food not made in nature, such as pizza or wine. With the growth of urbanization, it became increasingly easier for someone to never know the actual sources of the ingredients on their plates. Today, our lack of involvement in the production of our food means many children are lacking a basic understanding of where food comes from.\(^2\) The systems behind our nourishment – like many other industrialized processes – are designed to live under the surface and remain hidden (for the most part) from our modern world.

Currently, we are experiencing the largest urban growth occurring in world history with more than half of the world's population living in urban areas.\(^3\) History leading to these developments, increasingly sets new goals in the procurement of massive quantities of food. With these rising demands, human society affects the landscape, natural resources, and the labor population.
Globally, 884 million people (one in eight) live without safe drinking water.\textsuperscript{4} Besides drinking, irrigation (water for agriculture, or growing crops) is probably the most valuable use of water throughout the world. Irrigated cropland accounts for forty percent of the world’s food supply and nearly 60 percent of all freshwater withdrawals go toward irrigation uses.\textsuperscript{5,6} Large-scale farming could not exist to grow food for our large populations without the irrigation. Without water drawn from rivers, lakes, reservoirs, and aquifers, crops could not be grown in the deserts of the Central Valley in California or the southern Great Prairies once inflicted by the Dust Bowl of the 1930s.

The cadence of a center pivot irrigation system is the pulse of many large farming operations. It is an irrigation technology in which an apparatus rotates around a pivot and water is dispersed with sprinklers in a circular formation across fields. The first center pivot was patented in 1952 in Colorado. Today, the state of Nebraska is largest producer and user of center pivots in the United States.\textsuperscript{5} By 1972 there were an estimated 2,725 pivot systems. Nearly 30 years later, 21 million acres of U.S. land are estimated to be irrigated by over 170,000 center-pivots or adapted linear systems.\textsuperscript{7} Like many airline passengers, I have admired the geometric patterns on flights over the Midwest. Yet this irrigation technology remains an enigma to many people. As they gaze down on circles of various hues of greens and browns, they do not realize they are seeing an aspect of the underlying production of our massive food supply.

Since the times of the hunter and gatherer, grains have been stored in bulk. Use of food products beyond their natural cycle of growth would mean the invention of methods to store and preserve for periods of time. Grains, for instance, could be stored in dry places preserving them for many months. With the discovery of sophisticated grain storage that predates plant domestication, archaeologists speculate this may have introduced a better understanding of the potential of plants — and this would eventually lead to the development of agriculture. Earliest food storage was used for short term storage of wild plants and meat. Within only a couple thousand years, humans were building silos and more complex storage for longer term inventories.\textsuperscript{8}

In 2012, the world produced 2,241 million tons of grain.\textsuperscript{9} Today, storage of immense amounts of food is a priority for food production. Systems of storage and transportation of food commodities are a major undertaking. Throughout farmlands in the United States, silos, line roads, rivers and railways. The first modern, wooden and upright silo was not invented until 1873 in Illinois.\textsuperscript{10}

Prior to the modern world's mass production of food products, farming was primarily powered by man and animal, such as oxen, horses and mules. Postindustrial farming is assumed by many to be primarily mechanized with
powered machinery. However, fresh fruits and vegetables are the most labor intensive and many need to be picked by hand. At least, one third of vegetable and fruit acreage in the United States is dependent on hand harvesting.\textsuperscript{11} For this reason, there are large communities of farm workers – domestic and immigrant – who pick the produce you buy at your local grocery. These collectives of farmworkers are another example of the concealed systems of mass food production in our modern society.

Of the more than 3 million migrant and seasonal farmworkers in the United States, the majority are from Mexico. Due to this peripheral population being highly mobile, having language and cultural differences, low pay rates and varying levels of citizenship status, their existence is dependent on their community. For instance, around seventy percent of farmworkers acquire their jobs through friends or relatives.\textsuperscript{11} Children under the age of eighteen, conservatively estimated at 9 percent of seasonal farmworkers, work side-by-side with their parents in the fields. Nearly half of all workers live in communal housing regarded as overcrowded in which the number of persons per room is 2.5 or more.\textsuperscript{12}

In the following section, I will elaborate on how I wish my furniture pieces to bring these realizations into our daily consciousness through functional objects that reflect the system that supports our modern day food supply.
III. Critical Analysis

With my research into food production and the evolution of the structures that feed our population, I began to ask, Do people realize where the food on their table comes from? Are we eating meals mindlessly without knowing anything about the systems that brought our food to our local grocery stores? Would having some of this information affect the decisions we make for what we eat or where we buy food? At the very least, could objects and furniture around us spark interest or conversations in these underlying social structures?

For this body of work, I chose to concentrate on objects for the area of the home in which we most commonly interact with food – the dining room or kitchen. I then selected pieces that could also relate to the topics I would choose to embed within them. As a whole, the group of pieces will characterize the totality of the food ecosystem we live knowingly or unconsciously with.

My initial exploration was to look back to colonial times and the kitchens that existed before the Industrial Revolution. In the United States, families produced their food as well as their surroundings. A typical kitchen table would be simple. A pine table consisting of a rectangular top and square legs. Members of the family would sit at benches or stools made with tree stumps as bases and boards laid across for seats. They would eat the corn they hand-mashed into meal, the animals they slaughtered, and the cider they brewed from their own apples. This scene illustrates the simplicity of this communal gathering by ordinary people. This self-made meal that early Americans shared will be represented in the integrity and honesty that I intended to allegorize in the work.

This pioneering mealtime scene inspired my choices to design a dining table, bench, pair of stools and modular storage pieces. On a fundamental level, these pieces fulfill the practical needs of dining while simultaneously addressing the research topics. Furthermore, furniture pieces embedded with context arouse the user's curiosity through their unique designs.

The dining table is the symbolic center of our dining experience. It is a place where people gather to share, eat and interact over a meal. I chose to represent the terrain that we grow our food and live on with the table, “Rain Follows the Plow”. How has human society altered the landscape for our nutritional needs? “Rain follows the plow” is the name of a theory from the late 19th century about settlement and agriculture. The theory was that as humans cultivated more land, it would result in increased rainfall over time and effect permanent change on the climate. This
misguided belief led us to settle and farm on the Great Plains which would later be hit by the Dust Bowl in the 1930s. The earth has been altered by farming and even more so now by the mass production of food.

In modern times, our marks on the countryside can be clearly seen by the arial views of fields watered with central pivot irrigation systems. These circular, man-made forms appear as patterns of gridded circles or fractions of circles. These stretches of farmland, unnatural in their geometric patterns and locations, interplay with the earth's natural features, such as rivers and hills. Much of the farmland characterized by these watermarks is, in fact, artificial. It exists on land – that without digging into the limited water supplies in underground aquifers – would not exist. The table top for “Rain Follows the Plow” is re-imagined as this vast landscape. I chose to employ the natural character of end grain pieces cut from the center of the tree to appear as the these circular fields. The amazing patterns left from the central-pivot irrigated fields is evidence of our use of fresh water drawn from sources such as aquifers or rivers and lakes. On the tabletop, circular pieces are laid out in an asymmetrical pattern diagonally across the straight linear top. The effect when sitting at the table is a view of the ariel perspective of the land we have modified for the dinner presented. The base of the table holds our precious landscape similar to that of a gem held in the prongs of a ring setting. It's gentle twists adds a dynamic element, as well as, reflecting on the idea of a whirlpool - the interaction of two forces acting against each other.

Modern agriculture and the way in which we utilize the land for our agri-endeavors could not exist without access to water. Irrigation takes significant proportions of water withdrawals in all countries around the world. As the world's population expands, now nearing seven billion people on the planet, the consumption of water-thirsty crops and meat is increasing. In most large scale farm operations, the ground is fertilized with chemicals. In many areas the runoff of chemicals used in farming are poisoning local fresh water supplies. Safe drinking water is essential to humans. As we stand now, one in eight people in the world do not have access to fresh water.

“Safe Water” is a storage system consisting of eight water drop modules wall-hung above the landscape depicting this statistic. These droplets are also meant to remind the guest of the importance of water as a critical component that makes the processes of life possible. On Earth, water is moving continually through a cycle of evaporation, precipitation, and runoff back into bodies of water. The droplets are arranged as if they fall from the atmosphere down to the tabletop landscape. These bent wood pendants act as a sculptural wall feature with added function of storage. Water contains the source of life. Their lightweight walls echo the fragile walls held together by surface tension of actual water drops.
Food storage is a traditional domestic skill and in our modern world has great significance for the food industry. An integral part of this thesis narrative is the storage required for the increasing demand of larger quantities of grains, dairy and vegetables. Driving through the prairies and farmlands of rural America, the countryside is dotted with farms. Each of these farms includes a silo or groups of silos for storage. Even larger grain elevators, composed of groups of grain silos, line transportation routes that carry food across the country. Previous civilizations would not have dreamed that their early attempts at storage and preservation would lead to such large barrel like structures or buildings feeding the distribution system that leads to our groceries. I have represented this storage with a pair of stools, Silo I & Silo II. Their form is abstracted from a single silo that is barrel cylinder in shape topped with a circular roofing divided into cross sections. The segmented seat of the stool acts as the top of the silo. The negative area of the base refers to the storage qualities of a silo and it's shape reflects the cone shaped bottom of a silo where the grains or contents flow out of. The twist of the three point joinery evokes the motion of this draining of grain.

In my research, I was awestruck by how much modern agriculture relies on farmworkers and handpicking. Farmworkers handpick crops that can not be mechanized. Do we consider the thousands of acres and pounds of food picked by laborers? The final piece in the collection is a bench, “Campesinos”, that represents this community that is integral to the harvest. Today, my impression of the lifestyles of farmworkers resemble aspects of the lifestyles of early colonial Americans. Their livelihood is dependent on work in the fields and they are directly affected by seasonal opportunities and migration. The basis of the function of a bench is communal seating and the decision to choose this archetype is meant to represent this community of workers. The square log was selected as seating for it's impression of strength and honesty of form. The utilization of handmade joinery for the base is symbolic of the farmworker's handpicking labor. As guests sit together, this bench is a reminder of the laborers that bring food to tables.

As a designer, my design style is inspired by mid-century modern and Scandinavian design. These movements, originating in the 1950s, were characterized by reflecting on the beauty of simple, minimal and functional design choices. Additionally, traditional influences of historical American woodworking are found in the work. The aesthetic I have derived from these movements additionally supports the same themes of simplicity, honesty and durability found in early lifestyles from prehistory to colonial days.

The choice to use of solid wood for the sole material of these pieces is for it's impression of durability and genuineness. During this design process, I wanted the material, the wood, to also have a voice in my narrative. Wood was selected for the grain, color and natural features of each board. Natural defects like cracks showcase the organic
nature of the wood and honesty of material. Design choices were made for utilizing the circular patterns of end grain or juxtaposing the straight grain lines of quarter sawn boards to add direction and dynamism.

It is important for work embedded with these topics to make choices that are sustainable. All of the wood in this body was hand selected from locally sourced, domestic, American Walnut and Maple. A curing process to minimize cracking of the end grain pieces involved impregnating the wood with a nontoxic sugar solution. Finishing on these pieces utilized natural and oil-based solutions. Most importantly, I aim to create lasting designs that are well-crafted to last lifetimes. Sustainability is an aspect of my conscious decision to design pieces meant be lifelong possessions.
IV. Conclusion

My design process for this work began with research into the food system. In addition to content dealing with statistical data, unexpectedly, my readings included personal accounts of other's experiences researching the same subject. To this end, the work started to evolve away from data-driven forms and began referencing what I saw as the major components of the food system. I then began to see the totality of the body of work as the cartographic narrative I wished to communicate.

This body of work is meant to remind us of the importance of the unseen food system that exists to meet our nutritional wants and needs. Without added context, the forms utilized in both “Rain Follows the Plow” and “Safe Water” are most easily interpreted and convey their concepts. It is with added descriptions that the other two pieces find a place within the narrative. Once all is in place, the body of work covers the components of our food system which I found historically and presently most relevant.

On both the physical and mental level, eating a meal can release feelings of contentment, satiation and happiness. The experience of interacting with the work is not meant to sour or impede these basic reactions with berating lessons. Rather, aesthetics and design are meant to elevate these sensory experiences and simultaneously remind a person of the pathway of their food as they sit to eat. It is intended that the pieces act as a daily reminder of one of the systems that support our modern lifestyles.

Charles Eames once stated, “The role of the designer is that of a very good, thoughtful host anticipating the needs of his guests.” I found this statement very inspiring in his perspective that a good design involves attention to charm, detail and accessibility. With the design of these pieces, I have attempted to design unique pieces that imbue their functions with pleasant and mindful involvement. Keeping with a theme in Scandanavian design, I sought to achieve beauty through fairly minimalist, functional, clean and effective style promoting the concept of “beautiful things that make your life better”. I have aimed to create pieces that enhance a room as their story is added to a greater narrative of the household. My belief is that the most effective way to draw one into the story is through detail, warmth, and enrichment.

The work imparts knowledge of the extent to which the human ecosystem, and our economic and social well-being, are dependent upon our wise use of land and its resources. The heirloom quality of the pieces is reflective that these systems are enduring and not going away. And if our food network changes or evolves - these pieces are a reminder
of a point in time in human history. I believe people will more fully appreciate furniture that evokes thought or emotional responses and compels us to reconsider our basic assumptions about how we live, work, and eat. My goal is to create pieces that initially attract an audience with their beauty and design. Then, just as any good relationship unfolds, with these pieces they will dig deeper into the subject matters to gain insights, knowledge and form new viewpoints of the world and how we choose to live in and with it.


Bibliography


“Rain Follows the Plow”
“Rain Follows the Plow” Detail
“Campesinos”
“Silo II”
"Safe Water"
Photos Description List

15. Body of Work
   Thesis Exhibition - May 11, 2013

16. “Rain Follows the Plow” 2013
   29.75” x 41” x 63”
   Walnut

17. “Rain Follows the Plow” Detail

18. “Campesinos” 2013
   18” x 11” x 55.5”
   Walnut & Maple

19. “Silo I” 2013
   18” x 17” x 17”
   Walnut

20. “Silo II” 2013
   18” x 17” x 17”
   Walnut

21. “Safe Water” 2013
   60” x 68” x 7.5”
   Walnut & White Oak