

# Exploring the Boundaries of Function: Sculptural Space for Human Occupation

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# Abstract

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This thesis is a written documentation of my ideas and discoveries as explored during the design and construction of my current body of work. Inspiration from many varied sources has been combined to create sculptures that provide supportive space for the human body. The occupiable space of my current furniture is created by the combining of forms derived from nature with the structural expression of materials and connections found in engineered objects.

# Introduction

From the time I could hold a hammer through today I have been steadily building refinement of my understanding of what creation is and what role I play in the creation of form and space. From early years in my grandfather's garage I pounded nails into wood unknowingly beginning my discoveries of the properties of materials and the means to shape and join them into new forms. The techniques were rudimentary and the results were likewise but the seeds of curiosity were none the less sewn.

My interests in form and material led me to study design and construction through drafting and woodworking classes in high school. Drafting was a way to realize design from the beginnings of a sketch to fully articulated measured drawing. I enjoy the precision possible in a careful drawing. A sharp line made with careful control of hand and instrument has the power to render in two dimensions a form using a language with meanings in three dimensions.

The ability to produce a technical drawing was a great advantage in my early woodworking classes. There was very little art in these first works but I had developed the ability to read a mechanical drawing, understand it completely, and to build what was on paper. My abilities as a wood worker were not yet very advanced but my curiosity about design was primed and further study was a must.

It was an easy decision for me to study architecture. Behind my interest in the orchestration of materials is also the interest in effecting the lives of people. Architecture allows one to effect the emotions and perhaps even the lives of multitudes of people by designing to spaces they pass through and occupy. A skilled designer of space can create comfort or inspire fear, bring people together or drive them apart. It is not only buildings that can contain this kind of spatial power but furniture as well can affect people with the spaces about them.

# Shape of Furniture

Building furniture I have greater control over the complete life of a project than as an architect. Architects design but almost never build and are usually restrained by a clients interests. I believe the instinct to build protective shelter is the same instinct that spurs artists to create furniture and other art forms.

As a furniture artist I create exciting pieces of sculpture that function as environments for personal occupation. My current works of sculpture and furniture are centered on seating. These works provide a unique place for sitting or reclining, alone or in groups. The shapes I create range from curved open planes to mostly closed volumes, each affecting different levels of comfort and shelter. Each work is an experiment in how shapes make space and how these spaces affect a passing observer.

My primary social objective is to create objects designed to facilitate personal interaction and to create environments conducive to an awareness of special position. Each project is unique. Some are designed for one body and ask an occupant to conform to the space and reassess their own expectations of body position. Other sculptural seating environments provide support for multiple people in a variety of body positions, allowing the occupants to orient themselves according to their own comfort and purpose.

I draw my design inspiration from both the natural environment and the devices human crafters have developed to better support life. In nature I may see a spontaneous negative space created by the forces of the natural world and envision how that form could function as a simple shelter if enhanced by human hands. In the constructed world I am often drawn to the evidence of human activity, the enhancing of materials and forms provided by nature. This can be seen in simple tools, where function is discovered through form; and in architecture, where sculptures of space meet our most sophisticated mastery of materials.

# From the Natural World

Along with my appreciation of architecture and technical design I have a strong interest the forces of the natural world. Through many years of hiking and camping I have been and am still amazed at the strength and resilience of the many species of the natural world as well as the forces that travel it. There is a constant struggle for survival and plant life exists in a balance between the properties of its physical self and the environment it lives in. If trees did not bend wind would rip them out of the ground wholesale. Trees do bend and with time they take the shape of this balance between their physical properties and the force exerted on them.

I used to do a lot of camping and while sleeping out in the woods I enjoyed building shelters as opposed to bringing a tent. There was a certain kind of purity in the construction of your own protection from the elements. I think of my furniture projects as a type of shelter. Not a shelter in the sense of protecting life but a form to provide comfort. With my thesis work I wanted to communicate something of how a shelter, broadly any object for human comfort, is made through the combination of found natural materials and the application of human ingenuity.

I create each curved wooden arc using Bent Lamination. In this process thin strips of wood are stacked together and glued while I flex the assembly into the desired shape. The final shape achieved is the sum of my force and intention resisted by the natural properties of the wood fibers. These sculptural wooden forms are a record of my efforts and when assembled together to form the structure and surface of my furniture.

Each piece of wood in this first project was bent individually as a way to embrace the way nature would have done it in the outdoors. The basic structural frame for this project, a bench, is intended to suggest a living form bent down by an unseen force. I designed the bench to give the appearance of a plant growing outward from a central origin. We have all seen trees blown sideways or water plants pulled by the tide. With this piece I wanted to capture something of those natural forces.

Shelters can be found but more often they are built and it is the building that interests me most. The act of creation transmutes mere material into an object of human purpose. Human ingenuity is a necessary and key part of design and in order to build purposefully. I chose shelter as a conceptual starting point for my thesis work because it was shelter that mankind built first.

The act of creating a shape by the bending of wood is my way to connect with the relationship between organic material properties and the forces that affect them. In this first shelter I joined my materials together with a decidedly man made technology; stainless steel bolts. This obvious use of an industrial technology is meant as an example of a human designer using the powers of intellect to distill a material and shape specific to its task. I joined arcs of wood with steel bolts to create a form for comfort is a way to use both natural and industrial materials together to achieve more than either could have separately. The process is as important as the result.

## Evolution of an Idea

Like many things my projects evolve one into the next. Our needs as a species have evolved from the need for simple shelter to growing enough food to support a larger population. As our population has grown and our needs have changed so too has our technology advanced. The agricultural revolution was not a result of a growing population as much as it was a key to the growth of our population.

I worked for ten years, ages 11 to 20, on a medium sized vegetable farm in Connecticut. While there I used a variety of ancient human powered tools in planting and cultivation of crops. During that time I developed an appreciation for the simple beauty of a well crafted handmade tool. It is remarkable sometimes how nature influenced the designs of these tools themselves can actually be. The hand tools of the previous age often looked as though they were evolved alongside the very crop they were designed to work.

The second major piece of my BFA thesis was made as a direct continuation of the processes and results of the first. While “Bent Ash Bench” was, in part, making a shelter from found materials, here “Floating Lounge” is intended to communicate a more deliberate, utilitarian though fanciful, design sense making reference to man powered tools and to demonstrate a more sophisticated use of materials.

In this work I wanted to create an object obviously crafted with specific intention but yet leave that intention somewhat mysterious. I tried to build into it the suggestion of many kinds of both functional and natural objects. This allows a viewer to see in it what they bring to it and to broaden its appeal. There are design elements of a leaf, a boat, a wheel barrow, a seed pod and more. These specific objects were chosen because I could combine them artfully and because they are all different kinds of conveyances.

Aside from the conceptual and aesthetic considerations, with this second major work I also wanted to make some functional adaptations from my previous design. The first work was sized for one so I wanted to build a larger piece with the ability to hold multiple people in a variety of body positions. I also wanted to create a more closed form, to be less of something to sit on but to be something to sit in. All of these design choices are natural evolutions based off of the first project.

The curved form of this seating environment was constructed using a more complex process than the first. In this case the individual pieces here were not bent singularly, in absence of a reference, but most were molded around a form. Along with the greater degree of technological sophistication the structural system utilized to create this shape is not that of a living organism bent by a natural force but an engineered system with joinery and triangulation.

The wooden enclosure is supported in space by a frame of structural steel tube. This use introduces industrial materials in a far more prominent roll than the fasteners in “Bent Ash Bench”. It stills plays a literally supportive roll to the wooden portion of the project but it is equal in its overall importance. The organic shape of the seating portion contrasts with the angularity and strait lines of the support structure. From shelter to machine age the use of steel and other industrial materials has steadily increased. We have used steel as a structural

material in our buildings for many years but wood has remained a more common surface material. Wood is warmer and softer than steel and both are integral in architecture.

I utilize these relationships in a materially intelligent approach to design in which the materials of the built world are used in my furniture to represent the natural world according to their best inherent properties. The warmth and flexibility of wood is held in place by the cold security of steel. Some projects have the addition of the compressive strength of concrete or the soft comfort of thick upholstery.

The use of bent wooden elements provides a structure for flexible seating and creates a kinetic interaction between myself and the user through the piece. While seated a person's body conforms to meet the shape of the chair even as the chair flexes in response to the presence of the occupant. In this dialog between object and occupant every person's seating experience is unique.

## Built to Rest

In my third project steel and oak are equal partners structurally and conceptually. The relationship between oak and steel is further a codependent one. Neither portion could stand without the other but together the organic material and industrial material create a space for the human body to rest and be supported. This project was conceived in part as a dance between the oak and steel and I designed it so the two partners would lean into one another. Another central goal was to explore a fuller integration of steel, as a man made material, into the structural curve design language previously only represented in my work with natural materials.

This project, though large, is intended for a single occupant. It is almost a nest for one to climb up into. I hoped to create an enhanced sense of position by elevating the occupant just a little higher off the ground than a standing person. It is for me a kind of evolutionary conceptual culmination of this whole line of work, from building a shelter to agricultural labor device to a full on sculptural environment for nothing more than rest and leisure.

My last work of the year was inspired by the hills and valleys of a rolling landscape. It is a thesis dénouement made for a nap. This project is essentially a horizontal cushion floating on a spine of steel with adjustable height. Curved to a lazy “S” shape with four inches of foam wrapped in vinyl this project represents the ultimate in comfortable body positions. The Nest in Oak and Steel is about a powerful position of luxury while the Landscape Napper is for nothing but pure delightful laziness.

A thick foam cushion is something no one had in shelter built of boughs. After a day of labor on the farm a tired body can sleep on a plank. As our social and industrial technology have evolved beyond our best interests power and comfort have become important part of our life styles. It represents the limit of my technological capabilities. The structure is made entirely from curved and welded steel with adjustable supports and rotating joints and spring loaded handle mechanisms.

## **Conclusions**

By following the progression of design inspirations along this paths one project led to another and brought me from shelter to utility to luxury to sleep. The human hand and creative mind are found in the devices we use to provide for our comfort. I make selective use of manmade materials and connective hardware to suggest the objects of early agricultural and industrial production. In this way I capture the design inspirations of a natural force applied against an organic material as well as the simple elegance artisans employ in the production of time tested tools used in the foundations of human society. And by following this progression achieve sculptural forms that bring art into our lives as objects of comfort and utility.