

Abstract

The Growth of Form

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My sculptures are influenced by the forms and forces of nature. Certain natural forms captivate me: seed pods, bursting with potential life energy; branches and vines that reach and grasp in anthropomorphic ways; textures that mirror both the processes of growth and decay.

As a child, I was always drawn to the natural world around me. I would range through the dense New England woods, marshes and ponds where I made discoveries which may have seemed commonplace to others but were fascinating to me. I was a child that had an eye for detail and the tiny things that made nature amazing did not escape my gaze.

Nature can be likened to a web and it cannot be represented by something as simple as a single object; there is no end result, the cycle is in constant motion. The technical aspects of my work, the processes employed, allow me to mirror nature. This method of creation contains technical, time consuming, spontaneous and responsive processes which allows the work to grow and evolve. These two different ways of working are as important as the artwork itself.

Though my individual sculptures may appear to be an 'end result', they are simply a snapshot into the cycle of nature as I interpret it. They evoke questions as to where they came from and where they are going to. The forms I create are not meant to literally represent specific organisms, but instead contain the essence of many different organisms, combined to represent

the course of nature. The sculptures embody my view of nature and they take on new forms in the same way that nature evolves.

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THE GROWTH OF FORM

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INTRODUCTION

Observing nature, I am constantly aware of the majesty of growth. The continuous cycle of life is central to my thinking. Images of this cycle crowd my mind: clusters of spores on the undersides of fern leaves; delicate mushrooms and mosses sprouting suddenly from fallen trees; salamanders hunting silently for insects near the muddy banks of ponds; pollen-covered bees flicking tiny straw-like tongues into flowers.

As I grew older and began to study the science behind these phenomena, I was able to connect what I noticed in nature with human existence. Nature and life are processes, not end results. I saw the existence of a continuous cycle of birth, growth, death, decay and rebirth, like spokes of a great wheel that is ceaselessly spinning. While the larger ideas and implications of the cycle are important, so too are the tiny, subtle details. If the details get overlooked, the entire cycle loses something, like years missing from a person's life story. Just as one part of the mechanism of growth leads naturally into the next, no part can exist without the others.

Sometimes the development is carried out in ways that are unexpected. For example, certain pine trees produce cones that will only open and release their seeds when exposed to the intense heat of a forest fire. Such an event may seem destructive and chaotic but it is a method that nature uses to renew itself.

A pod is an easily recognized mechanism of renewal. They are an embryo with the possibility of creating new life and as such are full of potential energy. These vessels are generally expected to open and release their contents, be that a plant or a mass of seeds. The majority of the pods used in my artwork, however, are in stasis, their development halted for the sake of providing a snap-shot view of my interpretation of the

growth cycle. Some are closed, creating a question as to what they contain. While these forms provide some information about their nature to the viewer, much is left to the imagination, thus creating an element of mystery that is important to my sculpture.

There is dichotomy in nature, the simultaneous existence of control and seeming randomness of what could be perceived as chaos, that influences the technical aspect of these artworks. Control can be seen in the use of time and labor-intensive methods of sculpting, such as plasticene modeling and rubber mold making, or the processing of raw tree bark into paper. These processes are necessarily regimented and specific steps must be followed for the processes to work correctly. My use of direct wax working and of responsive steel fabrication and wood carving represents a different dynamic of nature, that which seems random. This responsive element is important for the artwork because my sculptures typically evolve as they are constructed. In essence, they change from the original concept as I solve visual problems, resulting in a new form that is unplanned.

Human culture is replete with natural metaphors. In East Asian cultures, the lotus flower represents rebirth and enlightenment and chrysanthemums represent a beautiful reminder of the fleeting nature of human life. In certain European cultures, oak trees are seen as metaphors of strength and rebirth. While the use of known images such as these might at first seem to be a simpler way to impart my message to the viewer, they are images full of symbolic meaning. I create forms which are not a part of this symbolic language because they allow the viewer to approach and form their own opinions and ideas about the cycle of life whether they are familiar with these cultural metaphors or not.

While my technical methods may echo the dynamic growth cycle of nature through the use of art materials and processes, I am not trying to create forms that capture the life cycle in its entirety. Instead each individual sculpture is a glimpse into one part of the cycle, a microcosm of the entire process, allowing viewers to imagine where the objects came from, how they evolved and grew, and furthermore what will happen to the objects in the future. There is no specific answer I seek to impart on the viewer, simply the acknowledgement of the cycle and the realization that the small details of the cycle are just as important as the more obvious processes.

TECHNIQUES AND PROCESSES

When creating a sculpture, I select the method or methods I feel most appropriate for the form, though this is subject to change as the form evolves. Given the nature of the growth, the creation of the sculpture is just as important as the finished piece. An apple might be one of the result of the maturation of a Mackintosh apple tree, but the apple doesn't describe the many parts of the life cycle of that tree. In this same way, the finished sculptures themselves do not necessarily embody the growth process, but when the technical methods are added into the mix, similarities to the life cycle begin to appear.

If creating a base for a sculpture, I eschew regular geometric shapes because I do not want my sculptures to impart a feeling of a laboratory specimen on the viewer. By using an abstractly-shaped base, I create the sense that the form is being seen as it would be if encountered in nature.

Because technical methods are so important to the concept of my work, I desire to be involved in every part of the process possible. The use of some ready-made materials is necessary, but in general I eschew this where possible, even going as far as to make some of my own tools.

Instead of having a single method of creating sculpture, I use many. Some techniques are swift, providing instant gratification, like a burst of growth after a spring rain. Other techniques take much longer and require intense labor to see their fruits realized, not unlike the cicada, which can spend as many as 30 years in its larval stage before becoming an adult insect.

Modeling and Mold-Making

The modeling process begins by welding a steel armature for one or more elements of the sculpture. The armature is a generalized version of the form that is to be created, leaving as much opportunity as possible for refinements and in some cases, more significant changes to the shape.

I then cover the armature with plasticene, fleshing out the body of the shape. At this point, the process is still very controlled and I generally do not deviate wildly from the general concept. The fluidity that I am able to achieve through the use of plasticene is my main aesthetic reason for using this process.

The next step is to create a urethane rubber mold of the plasticene element. While there are quicker and easier methods of molding, urethane rubber stands up to multiple uses better and can be removed from the sculpture easier than other mold-making materials I have experimented with.

This brings me to the main process-oriented (as opposed to aesthetic) reasons for using a method as time consuming as rubber mold-making, which is the ability to achieve a hollow form. This is desirable because a hollow form weighs considerably less and wastes less material. Casting wax into the urethane rubber mold, I am able to create a form that is ideally ¼ inch thick.

After the cast-wax element has hardened, the piece can be removed from the mold and altered as needed, or left whole. I typically create multiple wax-castings from each mold, reserving the additional wax-castings for use in the current, or another piece.

Direct Wax Modeling

In direct contrast to this very controlled and carefully planned method of plasticene modeling and rubber mold-making, I also work very responsively with sculpture by manipulating the wax directly. Wax sheets, rods or previously made wax castings all might be used in the process.

Warm wax is used to create the forms so that they can be arranged and manipulated with relative ease. While larger forms created in this method may need an internal steel armature for support, smaller wax sculptures do not require this step, allowing them to change and evolve during their creation. In essence, they are able to grow. At this stage, previously made wax castings can be combined with directly worked wax elements in a completely new way than was originally intended for the individual parts.

Steel Fabrication

The process of constructing steel armatures for my cast work lead me to experiment with steel fabrication. Instead of creating an underlying frame for the piece that would eventually be covered in wax or clay, I began responding to the armature as a piece of potential sculpture itself.

I begin by bending one or two steel rods by hand, creating a preliminary shape to which I then respond by gradually bending and adding more pieces of steel rod of varying lengths. If there is a part that does not work with the way the piece is developing, it may be covered with more steel, as tree bark might grow over a cut limb. Smooth steel rods of varying diameters is the primary material used in this method, but to add an

unexpected texture, small sections of rebar may also be incorporated, allowing its nature as a building material to play off of the organic nature of the form being created.

Papermaking

After being exposed to the process of papermaking by a colleague, specifically that of Japanese kozo paper, I began to see how it could be used as a covering, or skin, for my artwork. The nature of kozo paper is to shrink while drying and if it applied to a surface when wet, it will not only conform to the surface quite easily, but will also stretch over gaps. When the wet paper is placed over steel or iron an eruption of rust spots form in random patterns, giving a very organic and unexpected feel to the surface of the piece.

The process of making kozo paper is a labor intensive and time consuming one. The material comes from the inner bark of the Japanese mulberry tree and is purchased in raw, dry form. It must be soaked in water overnight and then boiled for two hours with soda ash, a highly alkaline material that serves to break down the rigid structure of the bark. After straining and rinsing the boiled bark, it begins to separate and can then be pounded with a mallet to expose individual strands.

After pounding, the material is put in a blender to shorten the fibers, but some long fibers are reserved. The short fibers are suspended in a water bath and the longer fibers are added and mixed in. Traditionally, kozo paper has been made using a variety of fiber sizes. The long fibers create a visual variation in the final paper, giving it more of an organic appearance.

A 'formation aid' is also added to the water bath. This thick liquid bonds with the fibers making it easier to produce sheets of paper that are thin, stretchy and easily formed

over convoluted surfaces. The wet paper is laid on the piece of sculpture. Small tools and brushes can be used to ensure that the papers gets into any small crevices or indentations. As the paper dries, it shrinks and clings tightly to the surface.

The paper may be ripped and pieced together in order to properly cover the form, and the seams become invisible once the paper is dry, allowing the surface to appear like a continuous skin that has grown on the surface of the sculpture.

While this method is most visually interesting on steel or iron because of the rust pattern that develops on the surface of the paper after it has dried, it can also be applied to forms of other mediums, such as bronze. If the paper is soaked in, or painted with an acid, such as common household vinegar, a green patina from the bronze will soak into the paper. For a similar effect, bronze shavings can be sprinkled onto the wet paper and sprayed with vinegar. Vinegar may also used to accelerate or intensify the rusting effect when the wet paper is applied to a ferrous metal.

Woodcarving

As someone whose portfolio contains a great number of metal castings, it worries me to think of my future after graduate school, where I may not have constant access to a foundry. Wood appeared to be a material in which the same fluidity of form that is possible through metal casting could be achieved.

Certain limits must be applied to the carving process. The size and shape of the piece of wood naturally applies the same limits to the finished sculpture. The density and the grain of the wood being used also affects how the material can be carved, in essence, how thick or thin the carving should be.

While I may have a general shape in mind prior to carving, I do not plan every detail and instead work responsively with the material. Initially, a chainsaw is used to remove large chunks of wood and a very rough shape is achieved. A die grinder fitted with a rasp bit used for the next step, and the shape is refined. While more traditional wood-carving tools could be used, the mechanical tools allow me to easily make sweeping shapes and whiplash curves that would otherwise be more difficult and time consuming to create with hand tools such as chisels and knives.

A sanding flap disk on a die grinder is used to put final touches on the shape of the sculpture and to remove the marks left by the mechanical rasp, and then the entire shape is sanded smooth. Smoothing the surface and treating it with Danish oil highlights , the natural grain of the wood. A final coat of paste wax is applied to seal the sculpture from moisture and help protect the carefully crafted surface. In addition to protecting the sculpture, the oil and wax also brings out a luminosity in the wood, a kind of softly glowing life.

Bases

I begin the process of creating a base by placing the sculpture, regardless of whether it is completely finished or not, on a large sheet of paper and looking at it from various angles. I outline the sculpture's footprint on the paper, as well as where the shadows fall and begin to develop a shape. Removing the sculpture, I continue to sketch on the paper using a continuous and responsive line to find a shape I find complimentary to the sculpture. The pattern for the base is cut from the paper and traced on the desired base material, which can then be cut into the proper shape.

Initially, I developed this process in order to create wood bases for my bronze sculptures. I sought to replicate the look of those bases for use with my wood carvings, however I feared the wood carving would get visually lost if its base was also wood and began using Portland cement instead of wood. Cement is an industrial material is easily cast. I used cement because it created enough contrast and did not overshadow or confuse the eye in relation to the wood carving.

When creating a cement base, I use the paper template created in the first part of the process and trace it onto the desired thickness of Styrofoam. The shape is then cut from the Styrofoam using a band saw, however it is the negative space created by cutting, as opposed to the shape itself, that is used in this process as the pattern to hold the cement. The outer Styrofoam pattern is glued to a plywood board so that no gaps exist. Petroleum jelly is brushed onto the plywood as a resist.

The cement is mixed and poured into the Styrofoam and plywood mold and allowed to set up for several days. The Styrofoam can then be removed and the cement casting taken off of the plywood. The casting must be left for several more days in order to completely dry. After drying, the surface of the casting can be sanded smooth if desired. Further treatment with a mixture of vinegar and iron oxide can be used to give the cement a much more natural look, but must be neutralized with water prior to sealing to ensure than the vinegar does not corrode the cement.

NOTES ON THE WORKS

Image 1: Reclamation/Rebirth



Cast Aluminum, Cast Bronze
10 in x 9 in x 6 in

Reclamation/Rebirth

The central element of the sculpture, the oculus, was modeled in plasticene. A rubber mold was then created to allow a wax casting to be made of the form. After casting, the oculus was modified by piercing a large hole in the center, then carving a texture similar to that of weathered wood into the surface. Hot wax was stippled in certain areas to texture the oculus. The oculus was cast in aluminum and treated with a linseed oil patina to achieve a dark mahogany color which would further the impression that the piece was indeed made of wood.

The second and more responsive element of the sculpture is the mass of vines and branches that hold the oculus. Silicon rubber molds were made of several twigs, which were then cast in wax. After having created enough wax twigs, they were manipulated and woven around the bottom half of the oculus and cast in bronze to create a noticeable juxtaposition between materials.

The oculus is an object roughly cylindrical in shape with two thick fins, one on the top and one on the bottom of the object. This shape, when coupled with the weathered wood texture of the surface is reminiscent of an aged tree knot or burl. A large hole pierces the center of the oculus and is surrounded by a texture that mimics moss that would be seen on decaying wood. Certain areas are also carved out as if the object was machined. Despite the organic tendencies of the shape, the details of the oculus are such that it appears to be a man-made object that was discarded and is now decaying. Thin bronze twigs rise to meet the bottom of the oculus several inches above the pedestal top, writhing and intertwining like earthworms.

Worms and insects are an integral part of the decay and renewal of nature. The twisting and grasping twigs create a mystery as to whether they are pulling the oculus down into the ground and like worms and insects, facilitating its decay, or growing from the oculus, in essence turning the oculus into a seed-like vessel that is capable of creating new life.

Image 2: Natural Repetition



Cast Aluminum
102 in x 18 in x 18 in

Natural Repetition

In creating this large aluminum casting, I modeled a pod of roughly 28 inches in length and 6 branches of 24 inches in length in plasticene. Rubber molds were made of the objects and three wax copies of each item were subsequently created. The wax branches were textured by brushing them with molten wax to create the appearance of tree bark. All of the forms were then cast in aluminum. A 1 inch thick disk of 24 inches in diameter was also cast as a base for the sculpture.

After casting, the pieces were assembled and welded together. Despite the fact that the three pods and sets of branches were identical, their orientation and arrangement was unique for each element. This assembly process was completed in a very responsive manner, adding the elements where they looked best, as opposed to sticking with the orientation of the elements from the original plasticene model. Once the branches and pods were welded together, the entire form was welded to the circular disk. The welded areas were then heavily textured through the use of a pneumatic needle-scaler, which created the look of thin, but rough bark.

Finally, the entire sculpture was completed with a patina of linseed oil. Heated linseed oil will color the surface of the sculpture anywhere from a pale golden yellow to jet black, depending on the amount of heat applied. For this sculpture, hues ranging from sienna to dark mahogany were used.

The piece features three pods, each of which sprouts out of the previous one via the gnarled branches that connect them. The pods had a highly convoluted surface giving the impression that they contain round objects which are growing and may cause them to burst open.

The bottom pod grows out of the circular disk, which is meant for structural stability, as the fully assembled piece is 96 inches in height, and is intended to be covered with grass or soil so that the bottom-most branches appear to growing directly from the ground. The pods are smooth, while the branches are covered in a thin bark texture to provide juxtaposition between the major elements.

A linseed oil patina covers the entire sculpture. The pods were purposefully heated to a higher temperature than the branches, rendering them a dark mahogany color. The branches were heated less, rendering them a color that changes from a much lighter sienna color in the middle of each branch. Radiating from the center towards either end of each branch the color darkens until it is the same rich, deep brown as the pods. This patina furthers the juxtaposition between the two elements.

This sculpture is a representation of continuous growth. Instead of creating a discernable plant, one pod grows another, which grows still another. This defiance of expectation creates a sense of mystery. In the typical order of nature a pod would release seeds, which would grow a plant, which would then produce another pod. The processes of the pod releasing seeds and those seeds growing plants have been eliminated. The pod, instead of being a metaphorical vessel of new life, becomes the literal vessel of new life. One life-vessel begets another life-vessel and so on, creating a repetition of shape and idea that extends beyond the visual scope of the sculpture.

Image 3: Interconnectivity



Cast Aluminum, Cast Iron
18 in x 18 in x 84 in

Interconnectivity

This sculpture took place in several major stages. The large pod was cast in wax from the same mold as the pods that make up *Natural Repetition*. While the pods in *Natural Repetition* had a solid skin, the low-lying areas of the pod in *Interconnectivity* have been cut away so that only the protruding areas remain. Wax rods ¼ inch in diameter were cut and added between the remaining areas not only for aesthetic reasons, which are mentioned below, but also to facilitate the proper casting of the pod.

Also cast in wax at this time were the ‘spore pods’, hemispherical objects studded with holes in a circular pattern. Some spore pods were left whole and intact, while others were slightly crushed while the wax was still warm and still others were cut so that only their tops remained. The spore pods and the large pod were then cast in iron.

A steel frame was constructed to suspend the large pod as the lower portion of the sculpture was created. The lower portion of the sculpture was then constructed using direct wax-working. Three tapering branches were created in this method, then joined at the bottom and manipulated in such a way so that they spiraled up towards the large pod and then around it.

The previously created iron spore pods were embedded into the wax branches starting at the bottom and continuing about half way up each branch. The branches were then brushed with hot wax to give them a similar texture to tree bark. Once completed, the branches were cut into sections to facilitate casting. The ends of the branches wrapped around the cast iron pod were left in place and then cast in aluminum along with the rest of the branch sections. The branch sections were then welded together to create the completed sculpture.

The large pod and smaller spore pods were repeatedly sprayed with a solution of salt and vinegar to speed up the rusting process on those iron elements.

The reason for the use of two metals in the case of this sculpture was to provide a contrast between the major elements of the piece. The spiraling branches hold up the 28 inch cast iron pod to a final height of 90 inches. The branches support the pod, though their growth appears to continue with the potential to engulf the pod.

There is also dichotomy within the pod itself. Thin iron rods arc over and around the cut away sections. They are like a system of veins or conduits, spanning the entire pod, connecting and reconnecting it to itself.

The spore pods that are embedded in the three branches add interest and color to the otherwise stark aluminum surface of the branches. The spore pods undergo a transformation of appearance. Where the spore pods begin to appear around halfway down the branches, they are small and just beginning to peek out of the bark. Successive spore pods grow in size until the entire hemispherical spore pod is seen. Further spore pods begin to show signs of decay, and the spore pods at the bottom of the piece are cracked and broken.

The branches grasp the pod anthropomorphically, like hands holding an object high into the air. Plants and animals expend an enormous amount of energy in reproduction in order to nourish the young organism and as the branches cradle the pod, they are almost protecting it.

While the branches are not young, neither are they ready to die. The iron spore pods suggest this, as they are decaying near the bottom of the sculpture, but young and

only partially grown near the top. One can imagine that these branches will continue to grow and that new spores will emerge from the bark, while older ones decay.

Image 4: New Growth



Cast Bronze

24 in x 12 in x 10 in
New Growth

The pod and the seeds, or ‘oculi’ were initially sculpted in plasticene, then reproduced in wax, using rubber molds. After being cast in wax, the pod was altered from its original state by cutting it into four sections. The stalk and leaf were modeled directly in wax and then brushed with more wax to give them texture of tree bark. More wax was stippled around the base of the stalk to blend it in with the pod and to give a mossy texture, as if the opening pod had created its own small environment for the stalk and leaf to grow in.

A ferric nitrate patina was also used, giving the sculpture varying degrees of brown hues, which resemble the color of fallen and decaying leaves. The smoothly sliced sections of the pod were polished to create the impression that they are mechanical in nature or made through mechanical means, which is in direct contrast to the organic form of the sculpture.

In *New Growth*, the sculpture is centered around a pod that is 8 inches in diameter at the bottom. The pod is covered with fin-like protrusions that resemble a marine species of vase sponge, or coral. It opens from the top and is sliced into four equal sections. The slices are very smooth and regular, creating the impression that they may have been created by mechanical means.

From the bottom of the pod’s interior grows a stalk that curls at the top and supports a single leaf. The interior of the pod is tiny environment in which the plant can grow. In this instance, the pod has created its own terrain favorable to the growing plant, instead of releasing the seed in hopes of it coming to rest in such a place.

From the center of the leaf hang five seeds with the similar shape to the oculus from *Reclamation/Rebirth*. The shapes of the seeds, like the slices in the pod, are non-organic in nature, creating a juxtaposition between what is expected and what actually appears. Far from eliminating the mysterious element, the presence of the plant, which itself bears seeds shaped like the oculus from *Reclamation/Rebirth*, serves to heighten the sense of mystery.

Image 5: Evolutionary Construction



Steel, Kozo Paper
36 in x 24 in x 18 in

Evolutionary Construction

Evolutionary Construction utilized the process of steel fabrication. Casting can produce fluidity that is important to my work, however with *Evolutionary Construction* I strove to imitate this fluidity in steel rods of various diameters. By bending, twisting and clustering the rods an organic spiraling form similar to that of bamboo or bundles of reeds was achieved. This activity was purely responsive in nature. The rods were bent by hand and then applied and welded to the growing form. If one rod appeared to be out of place it could be covered over with more rods. The planned labor intensive part of the process occurred not in mold-making, but in the processing and application of kozo paper to the surface of the steel form.

Wet kozo paper was applied directly into the curves and contours of the steel structure and dried like a tight skin. Rust from the steel bled through the paper and created an unplanned natural pattern.

Evolutionary Construction is a steel structure which has been covered with natural fiber and has evolved into a natural form. Despite this, it still carries with it the essence of its underlying industrial character. In this sense, it is like a decaying structure which is now overgrown and being consumed by nature. The original structure is struggling to hold on, but like a derelict building, it is powerless to stop the inexorable growth of the natural material that envelops it.

Image 6: Biorhythm



Cast Bronze, Mahogany, Oil Paint
28 in x 18 in x 11 in

Biorhythm

Biorhythm was constructed using direct wax manipulation to create a twisting, writhing form that could be altered in any way during its creation. The modeling wax used was soft, so especially thin areas had to be supported. Some sections were supported by pieces of bronze welding rod, and others by attaching the sculpture to a steel frame with wire. This served to keep the sculpture stable as it grew and expanded.

Oculus seeds were cast in wax from the same rubber mold that had been created for use in *New Growth*.

The sculpture was cut into several sections to facilitate casting and then cast in bronze. The sculpture was then reassembled and welded together. A stainless steel bolt was also welded into the bottom of the sculpture so that it could be attached to a base. The sculpture was then patinated with a mixture of cupric nitrate and ferric nitrate to create a mottled deep green patina which accentuated the organic nature of the piece with an equally organic coloration and pattern.

Prior to choosing a material for the base, the sculpture was placed on a large white surface. A light was set up behind the sculpture and the shadow that the form cast was traced onto the white surface. That tracing was simplified and used as a template for the base.

The base was cut from a slab of mahogany that was 2 inches thick. The wood was sand-blasted to bring out its grain and then a mixture of black, brown and maroon oil paint and galkyd medium were mixed into a semi-transparent pigment and applied to the wood. Once the pigment dried, the wood was lightly sanded to remove the pigment from the high points of the grain, staying only in the lower points of the grain. Three coats of

Danish oil were applied and then the wood was sealed with wax. Small risers were also added to the bottom of the wood to create a shadow underneath the base and disconnect it from the pedestal so that it didn't visually weigh the sculpture down.

Biorhythm features a bulb at the bottom from which grows a twisting vine. The vine coils and twists in different directions, finally ending in a leaf and a string of five oculus seeds. The seed closest to the leaf is the largest, roughly an inch in diameter and subsequent seeds grow smaller and smaller, the final seed being about one quarter inch in diameter.

The sculpture appears to be off-balance. The bulk of the vine coils into the air to one side of the bulb. This effect also gives the impression that the plant is deeply rooted, for there is no other way for the form to hold its bulk off the ground at such an angle if the underlying support structure was not strong. The irregularly-shaped base implies that the form is being seen in its natural environment, as opposed to a specimen on display.

Unlike other works in this series, *Biorhythm* is not a static form. Because of the twists and turns, the sculpture appears to move. This movement is unexpected, as plants are not expected to move in such a fashion and it creates within the sculpture a sense of life beyond that of a plant.

Image 7: Skin



Cast Iron, Cast Bronze, Steel, Kozo Paper, Sassafras
15 in x 10 in x 10 in

Skin

After having the experience of steel fabrication while making *Evolutionary Construction*, I decided to reproduce the basic elements of the form in iron. Working with wax, a greater fluidity and tighter curves could be achieved.

Instead of steel rods, wax rods were utilized. A coat of liquid wax was brushed on the surface to create a bark-like texture on the surface. Additionally, three small objects that resembled oblong versions of the oculus seeds used in *Biorhythm* and *New Growth* were sculpted in wax and reserved for casting in bronze.

The entire surface was covered with wet kozo paper. The paper on top of the cast iron developed a much denser rust pattern than it had on top of steel. The bronze oculus seeds were also partially covered with kozo paper and vinegar was applied to create a green patina that would bleed into the paper.

An organically-shaped base was cut from a 3 inch section of sassafras wood, which was then sanded and polished with oil and wax. A piece of steel that was pitted from rust was selected to go between the iron casting and the wood base. The bottom of the iron casting was traced onto the steel and the plasma cutter was used to cut a shape that was slightly larger than the bottom of the iron casting, but still mimicked the shape like a shadow.

As opposed to a single stalk, *Skin* has many tightly compacted stalks that have grown together, weaving in and out of one another. While the idea for this sculpture stemmed from the experience of making *Evolutionary Construction*, the effect is profoundly different. Whereas *Evolutionary Construction* has the appearance of a bundle of reeds or bamboo that have been cut and bound, *Skin* gives the impression of more

organic growth. The kozo paper that has been applied to the surface retains the impression of the underlying vines and serves to make them a single entity upon which a covering skin has grown, as the title suggests. The rust appears in a manner even more haphazard than that in *Evolutionary Construction* and the iron shows through in areas, accentuating the extremely fibrous nature of the kozo paper. The oblong bronze oculus seeds were also partially covered in paper, creating the impression of a thin shell or skin that is being cast off as the seeds grow.

Image 8: Nucleus



Cast Bronze, Pecan, Portland Cement
36 in x 24 in x 18 in

Nucleus

The techniques used for this sculpture, primarily the direct wax-working methods, were very similar to those used for *Biorhythm*. The sculpture consists of two distinct plant forms similar to that of *Biorhythm*, which are intertwined in a kind of anthropomorphized embrace. Instead of creating the forms individually and combining them at the end of the process, which could have caused them to appear disconnected, the two elements were created at the same time, thus imbuing them with a greater appearance of connection.

Of the two plant forms, one is lanky and tall while the other is coiled heavily, almost serpentine, near the base of the sculpture. Each form ends in a leaf, but both leaves are in various states of decay. From the taller form sprouts a large, single seed shaped like the oblong oculus seeds used in *Skin*. The seed hangs from a stalk, and waiting to fall into the leaf of the shorter form.

The forms were patinated after casting in bronze. The taller form was patinated with cupric nitrate, ferric nitrate and bismuth nitrate, which created tones of pale green and turquoise, while the shorter coiled form was patinated with silver nitrate and red ferric oxide creating varying shades of dark red. The single seed was patinated pale green on the top half and dark red on the lower half.

The red plant form coils protectively around the green plant form arching over the red plant form in order to deposit the seed in the red plant form's waiting leaf. This behavior is the opposite of what a viewer would expect from plant, which does not typically reproduce in such a manner.

The forms sit on a thin slab of pecan wood. For added depth and stability, a larger and slightly differently shaped base was cast from Portland cement. This 2 inch thick slab of cement was treated with a solution of rust and vinegar to give it the appearance of reddish soil and then was sealed with paste wax.

Image 9: Beyond the Grain



Pecan, Steel, Portland Cement
16 in x 10 in x 9 in

Beyond the Grain

Having previously attempted to make natural forms with industrial materials, I decided to create these forms in wood, a natural material. Wood carving is a subtractive method of sculpting, requiring the removal of material, as opposed to the additive methods of building forms that I was accustomed to using. Despite my relative unfamiliarity with wood carving, I felt as though the natural grain and coloration of wood could enhance the organic quality of my sculptures. Creating thin or twisting forms in wood did not seem to be as simple as it was when sculpting with clay or wax, but I enjoy the challenge of techniques that are unfamiliar to me.

The process began by selecting a pecan log about 16 inches long and 6 inches in diameter. I started by using a small chainsaw to remove large sections of material and arrive at a general shape. The process was unplanned and responsive. Once a rough shape was achieved it was refined by using an air-powered die-grinder fitted with a rotary rasp. When the form was finalized, sandpaper was used to completely smooth the surface. Several coats of Danish oil and paste wax were applied in order to bring out the natural grain and color of the wood.

The finished wood sculpture measures 14 inches tall and features a bulb that sits partially in the ground. From the bulb grows a thick stalk that twists several times before ending in a lobed flower/leaf that protrudes from the stalk in the manner of an ear or other similar orifice. A thin crack runs up either side of the bulb and these have purposefully not been concealed, but rather left alone because they are a natural reaction of the wood losing moisture. The cracks give the sense that perhaps this plant form is in a state of decay or that the bulb is cracking to allow for new stalks to protrude. The plant

form is in a state of stasis like the other sculptures in this series. However, where other sculptures in the series appear to be growing, moving and/or producing fruit, *Beyond the Grain* is in a state of anticipation. The reason for the anticipation remains a mystery, leaving it open to the viewers' interpretation.

The bulb sits on top of a thin, organically shaped steel plate that has been pitted with rust. The steel is attached to a 2 inch thick slab of Portland cement, which is also organically shaped in a manner reminiscent to that of the steel. The cement was treated with a solution of iron oxide and vinegar, then waxed. The top of the slab was sanded smooth, but the sides were left rough to give the impression of soil.

The slab sits above a footing constructed from two pieces of $\frac{1}{4}$ inch square steel stock. The stock was bent in such a way as to mimic the shape of the slab. Several pieces of $\frac{1}{8}$ inch steel rod raise the slab $\frac{1}{4}$ above the foot. This was done to make the slab and footing part of the sculpture and not simply a surface on which the sculpture sits.

Image 9: In the Forest



Spalted Pecan, Steel, Kozo Paper, Portland Cement, Black Walnut
14 in x 12 in x 8 in

In the Forest

The experience of creating *Beyond the Grain* lead directly to the creation of *In the Forest*. Once I had discovered what could be accomplished through carving wood, I decided to push the boundaries of what I had previously created by carving a thin, twisting stalk that culminates in an equally thin flower/leaf.

This sculpture was carved from another section of the same pecan log as *Beyond the Grain*, however *In the Forest* has quite a bit of spalting. Spalting is a pattern of black streaks and spots that result from fungus growth within the wood. This gives the finished sculpture a random and unexpected pattern that contributes to the overall organic feel of the form.

As with *Beyond the Grain*, *In the Forest* is stuck in a state of anticipation; its cuplike leaf outstretched as if waiting for something to fall into it. This form is reminiscent of the red plant form in *Nucleus* waiting to catch the seed produced by the green plant form.

The plant form sits on a ¼ inch thick piece of organically shaped steel that has been covered with kozo paper. The kozo has absorbed rust from the steel in some areas and not in others. This created a natural pattern on the paper. This piece of steel was attached to the surface of a 1 ½ inch thick slab of Portland cement which is shaped similarly to the steel. Like the other cement slabs used in this series of work, the surface of the slab was polished while the sides were left rough. In similar fashion to *Beyond the Grain*, the slab for *In the Forest* is raised by using a footing of black walnut wood. Many pieces of 1/8 inch steel rod that have been wrapped in kozo paper hold the cement slab ½

inch above the walnut footing. The paper-covered rods were placed randomly and the final effect of the footing is similar to clustered trees in a dense forest.

Image 10: Herald



Cast Iron, Kozo Paper, Spalted Pecan
20 in x 18 in x 14 in

Herald

Herald arose from a desire to further explore the combination of cast iron and kozo paper as I had done while creating *Skin*. The construction of *Herald* was very similar to that of *Skin*, however, knowing that I wanted *Herald* to be larger and have a more complicated form, I created a welded steel armature for the sculpture.

On top of the armature, wax rods were woven together until the appearance of clustered, tangled vines was attained. The entire sculpture was brushed with a thin coat of molten wax to give it a bark-like texture, then cast in iron. Kozo paper was then applied to the surface in the same manner as *Skin*.

The sculpture, which measures 16 inches tall, twists around itself without touching. The vine cluster grows thinner as it ascends and then cascades down, spiraling around itself. The form culminates in a flower/leaf that is deep and trumpet-like in shape. From the trumpet emerge three seeds that are long teardrop-shaped versions of oculus seeds which have been made from pecan wood. Creating the seeds in wood was something that I had not previously attempted, however it seemed like a natural outgrowth of adding wood to my visual language. The seeds were turned on a lathe and then carved slightly before being smoothed and oiled. The plant form appears to be shooting the oculus seeds out of its trumpet, perhaps announcing the arrival of spring.

The base for the piece was cut from a large slab of pecan wood that came from the same tree as the wood used for the oculus seeds, thus creating a connection between the two elements.

Image 11: Writhe



Cast Iron, Kozo Paper, Steel, Pecan, Leather, Portland Cement
22 in x 18 in x 14 in

Writhe

Writhe's twisting and turning cast iron form was constructed directly from wax in a manner similar to the *Biorhythm* and *Nucleus* sculptures. *Writhe* is much more compact than the other two sculptures mentioned, coiling around itself tightly. Whereas the surface of the other two sculptures was covered in thin grooves, *Writhe*'s surface was left raw. The wax pattern was then cast in iron.

I was pleased with the random patterning of rust that appeared when applying the wet paper to both *Skin* and *Herald*. I decided to experiment with this method on a piece with a more dynamic shape.

The base for this sculpture was created from a cast slab of Portland cement. Like previous cement bases, this one was cast by using a Styrofoam pattern. In order to raise the slab off the ground, holes were melted in the bottom layer of foam, resulting in $\frac{3}{4}$ inch high cement feet of varying diameters and shapes. The foam pattern was also melted slightly in areas prior to casting to give the base the appearance of natural, weathered stone. After casting, the cement was patinated with layers of rust and vinegar solution. To visually separate the sculpture from its similarly colored base, a piece of vegetable-tanned leather was cut in a similar shape to the base and placed between the sculpture and its base. The leather was first brushed with a mixture of boiled linseed oil, copper oxide and iron oxide to darken the color. Then a solution of rust and vinegar was brushed onto the leather. Because of the oak tannins used in the vegetable-tanned leather, this rust/vinegar combination turns the leather black. The solution was then washed from the surface of the leather, revealing some of the brown coloration underneath.

Writhe's form is condensed and its contorted, squirming form coils around an oblong bulb covered with small protrusions. The form twists and turns until a thin stalk emerges from the knot, culminating in a single decaying leaf that shelters three small oculus seeds that droop down from it. The seeds were carved from pecan wood.

The plant form seems to be in the throes of death, reacting visibly with pain like a writhing snake or worm but its wracked body still manages to produce and shelter a trio of small seeds; the last gasp of a dying organism.

CONCLUSION

I have always observed things in nature that most people might overlook, the subtle details that made one organism unique from another. In my treks through the woods as a child I witnessed the never-ending cycle of birth, growth, reproduction, death and decay, and while I didn't fully understand this cycle, it made a lasting impression on me. With maturity came comprehension of the cycle and its mechanisms, and I was able to draw on my childhood experiences in order to produce a coherent vision of nature as I saw it.

As an artist, I strive to mimic this cycle with artistic methods in a way that allows for change and unplanned development, as I so often witnessed in nature. The succession of birth, growth, reproduction, death and decay is represented in the creative processes I use. Where a seed grows a shoot, I create a stalk or vine out of wax. The shoot matures, increasing in size; I give my sculpture bulk, adding elements as I see the need.

Sometimes the sculpture appears to die as I change the concept, decays as I melt or burn the materials, and finally gains life again as I complete it. While my technical methods are not the same as those found in nature, they nonetheless facilitate a succession of states that can be likened to those of the life cycle.

My forms simultaneously represent a range of different organisms in an effort to demonstrate my view of the natural life cycle. The finished sculpture becomes a snapshot into one small portion of the life cycle and the viewer is able to imagine not only how the form came to be, but also what it might do next.

Through this body of work I have achieved my goal of representing and demonstrating my view of the natural life cycle. In many ways, my time in graduate school has been the spring of my career as an artist, a period of expansive growth in which I have been able to branch out and explore some of the possibilities of my chosen medium. Moving into the summer of my life as an artist, I plan to continue exploring the idea of the life cycle though my visual language may evolve.

In this confusing and hectic world, I have reached out for something that is stable. The life cycle, while it may be carried out in unexpected ways, does not change. One part follows the other inexorably, like a turning wheel. Through the sale of my sculpture, I have made a connection with viewers who have identified with my portrayal of nature. This experience is not unlike that of a gardener; I have grown and nurtured this form as one might grow and nurture a young plant and the viewer has taken it home to cherish it further and allow it to mature. I have completed my phase of the cycle and have delivered it into the hands of a new caretaker.