META SPHERICAL

by

Alexander A. Miller

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THESIS

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Accepted:

_____	_____
Eric Brennan, M.F.A. Committee Member	Joyce Michaud, M.F.A. Director of the Graduate Ceramic Arts Program
_____	
Philip Berneburg, A.M. Committee Member	
_____	_____
Joyce Michaud, M.F.A. Thesis Adviser	April Boulton, Ph.D. Dean of the Graduate School

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TABLE OF CONTENTS

LIST OF FIGURES

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ABSTRACT

Meta Spherical is a sculptural exploration of the search for truth at the intersection of science, faith, and human perception. Interconnected matrices of smaller clay components come together to form abstract sculptures referencing the sphere as a metaphor for absolute truth. The depth and texture of the forms are highlighted through eroded slips, stains, and underglazes, or through the effects of an atmospheric soda firing.

The opposing qualities of positive and negative space, of construction and deconstruction, are integral in expressing themes of the human search for comprehension within an enigmatic universe. Through variations of the spherical forms, the artist examines a personal deconstruction of fundamentalist religious belief and the embrace of questioning, doubt, and scientific explanations for our existence. The result is sculptural ceramic work that addresses a metacognitive approach. The work illustrates the mystery and beauty of our search for answers.

THESIS STATEMENT

Meta Spherical is a sculptural exploration of the search for truth at the intersection of faith, science, and human perception, expressed through abstract spherical forms created with matrices of small, individual clay units. Through this work, the artist examines a personal deconstruction of fundamentalist religious belief and the embrace of questioning, doubt, and scientific explanations for our existence.

CHAPTER 1: INTRODUCTION

The studio research project *Meta Spherical* consists of sculptures that explore the search for truth in this incomprehensibly huge universe. I began this project examining my fundamentalist form of Christianity, slowly incorporating science-based explanations for our existence into my worldview, while embracing doubts and questions. My use of the term "meta" for the sculptures in this series references the formation of beliefs, not whether a certain belief is true. I am not out to prove or disprove beliefs, but rather to explore how one arrives at them. The artwork isn't an answer to my questions, but rather a representation of my *search* for answers.

The work in this series is typically expressed as abstract, partial or whole spherical sculptures, constructed of smaller clay components. The units of construction in this body of work range from rectilinear slab pieces to extrusions and broken pottery. Each component used in construction of the sculptures can represent an insight, a fact, an experience—which all come together to forge a fragmented *whole. Soda Fired Sphere* (Figure 1.) was my first sculpture to represent the design language chosen for this research. The amalgamation of the many pieces into one resulting whole, often spherical form, represents how human perception, experiences, and knowledge can offer us glimpses into absolute truth.

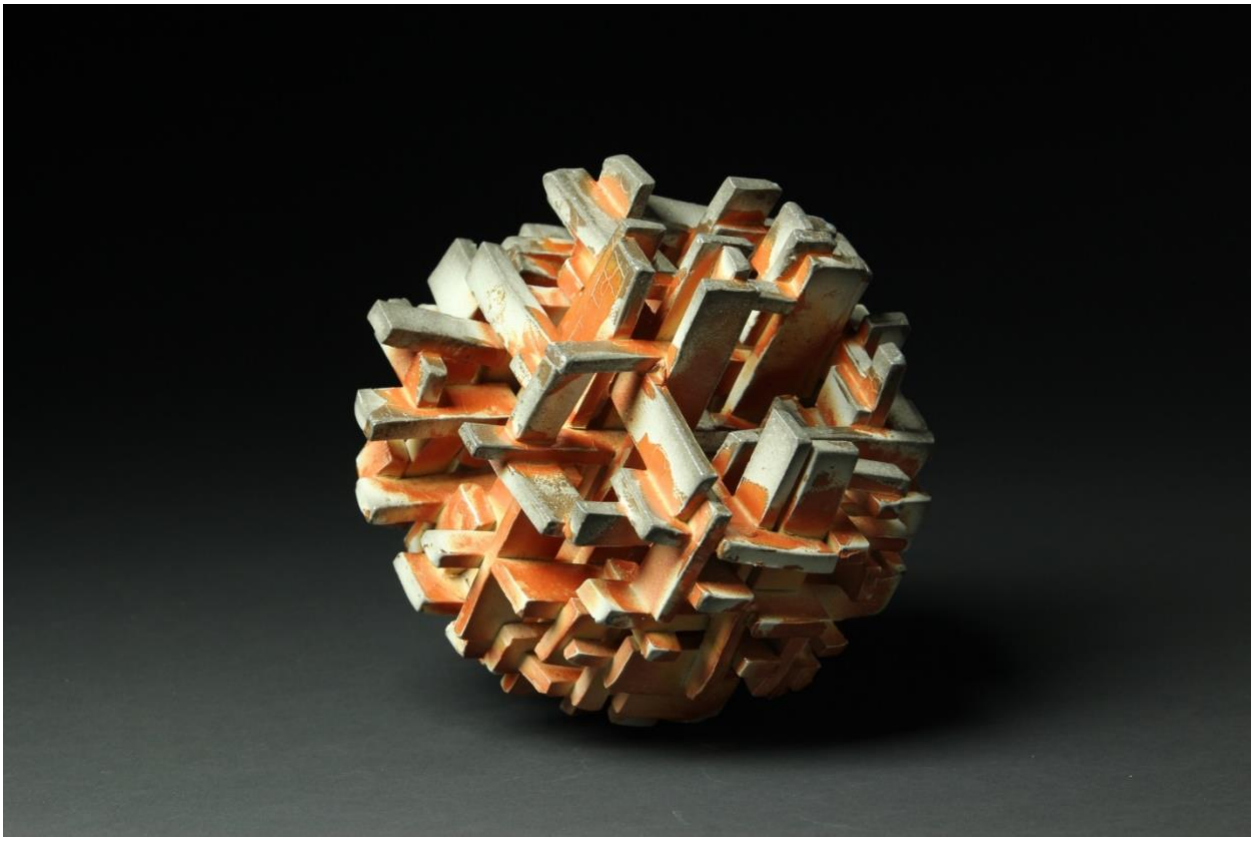

Figure 1. *Soda Fired Sphere*, 2012, Stoneware, 8 x 8 x 8 in.

The use of the sphere in *Meta Spherical* represents absolute truth. A complete sense of absolute truth would be represented as a perfect, complete sphere. However, the idea being explored in *Meta Spherical* is that humans have an incomplete view of absolute truth, therefore none of the sculptures in this series is represented as a perfect, solid, sphere. The negative space is essential in expressing the incompleteness of human perception. We can only experience a small percentage of all there is to know and feel because we perceive our existence through only one set of eyes, one set of ears, one pair of hands, and one brain to process. Though our understanding is seen through the lens of culture and collective human knowledge, our experience is still limited to our own senses. The work in *Meta Spherical* is not specific to any

one piece of information, but rather addresses a metacognitive[1] approach. The sculpture represents a search for the truth within a material and spiritual existence. My personal feelings and experiences are the impetus for the specific themes in *Meta Spherical*. The abstraction employed in the sculpture, however, allows the viewer to interpret meaning through their own lens. It invites the viewer to peer closer into the negative spaces, to move around the work to see changing perspectives. It is not necessary that the viewer *read* a precise meaning from each piece, for me it was necessary to create these works to explore my own understanding of what is true.

[1] Metacognition refers to a form of higher-order thinking that enables analysis of one's own cognitive processes, particularly in association with learning.

1.1 The Artist's Religious Deconstruction

> "Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there--on a mote of dust suspended in a sunbeam."[2]

In the above quote, Carl Sagan aptly sums up the humbling effect of pondering our human existence in such a vast universe. It was in thinking about the vast distance and time scales of the universe that I began my faith deconstruction[3]. I grew up being taught that the Bible was the literal authoritative word of God, and that our world was created less than 10,000 years ago in seven literal days. Deconstruction began when I realized that the version of Christianity that I was taught was not compatible with scientific explanations of how our world came to be, and when a fundamentalist view of Christianity no longer personally resonated with me as true. I then chose to embrace a form of Christianity which viewed many of the Old Testament stories as metaphors, poetry, or myths through which to tell other truths. A whole new world began to unfold before me where the realities of evolution, of the 4.5-billion-year old earth, all lived comfortably with the hopes, doubts, and uncertainties of faith. Science and faith can be

[2] Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*, Reprint edition (New York: Ballantine Books, 1997), 8.

[3] The term *deconstruction* refers to the process of re-evaluating belief and incorporating new information, evidence, or values into one's view. Religious deconstruction can lead to a new form of religious faith, or eventual abandonment of belief.

compatible when their roles are properly placed in context; they both exist to answer different questions, and art can be a medium for exploration of both.

The next religious stumbling block that I encountered was the anthropomorphism of God. If there was a god that created and is part of such a vast cosmos, then it made no sense to me that such a god would look like the white older male, with long white beard and robes. It made no sense to me that such a complex god would interact with humans the way we might talk to our own fathers. The tension felt when considering opposing belief systems enveloped me until I could find some resolution; this came to me in a personal moment of enlightenment in which I came to view God as a circle—a symbol for absolute truth, for wholeness and completeness. If there was a god, it wasn't actually some circle floating in the sky, but rather if there was a god, then it was too complex to really comprehend without symbolism, so the circle was chosen which soon began to appear in the artwork I was making at the time.

Over time, as my deconstruction continued, there was an ever-present sequence of questioning and reexamining my religious beliefs. I observed hypocrisy, anger, hatred, racism, and violence displayed in self-professed Christians. I observed the rise of the American evangelical right, intertwining politics with religion. I learned more about evolutionary biology, sociology, and explanations for human behavior beyond what religious texts claimed. I considered the "problem of evil"[4], the logical problem encountered when attempting to reconcile an omnibenevolent, omnipotent, and omniscient God with the existence of evil. All of these things slowly chipped away at the form of faith I once professed. Along the years of questioning, my fundamentalist religious faith dissolved first into a more progressive form of Christianity. Over time as questions and doubts continued I found reliable answers only in scientific and

[4] "Logical Problem of Evil | Internet Encyclopedia of Philosophy," accessed July 3, 2018, https://www.iep.utm.edu/evil-log/.

rational explanations, based on tangible, observable, and falsifiable methods. I have let go of the supernatural claims of religious belief, but am still open to possibilities for things science cannot explain. I am open to questions and uncertainty, but at the end of this deconstruction process I only stake claims of truth on that which can be observed materially or on philosophical and logical conclusions based on the rational study of our world. My own conclusions are limited to my own senses and life experience. If something is true, it is true whether one believes in it or not. Another person may rationally arrive at a different conclusion regarding spiritual or philosophical belief. The work in *Meta Spherical* is based on my own personal deconstruction and search for truth, but the ideas expressed in this research can be a metaphor for any person's search for truth.

1.2 Earlier Work

The first piece to showcase my conceptual use of the circle (God, completeness, absolute truth) was a painting installation in 2007, consisting of sixteen 12”x12” panels (Figure 2.).

Figure 2. *The Whole: Assembled*, 2007, oil on panel, Velcro, 48 x 48 in.

Each panel was first installed in university restrooms at Shippensburg University on the lavatory mirrors, to force a viewer to notice an abstract, context-free painting. All of the panels were then assembled into a single 48" x 48" whole, where the individual abstract panels came together to create a cohesive circle. This was a seminal work for me because the concept relates to the work I am making now. At the time, however, my interpretation was also about how people viewed abstract art within my small-town radius. Many people would see an abstract work and discount it. So, in this first painting I forced the viewer to find purpose in the seemingly non-objective lines, colors, and shapes. I recreated my own moment of enlightenment in the viewers as they experienced the "aha!" moment when they first saw purpose to the abstract shapes coming together to create *The Whole*.

Serious work in clay began during the senior year of my undergraduate[5] work. My late grandfather, David Spangenberg, was a potter, and I cherish many memories of seeing him working his kick wheel or getting clay out for the children to play. When I took a strong interest in working with clay in college, I felt a core connection with my heritage. The familial significance of working with clay motivated me to pursue further, and begin mastering the skills required for the medium. A pivotal piece was *Slab Triptych* (Figure 3.) which was created out of a desire to use clay to create sculptural work.

[5] Bachelor of Arts in Art Education, Shippensburg University, 2007.

Figure 3. *Slab Triptych*, 2009, Stoneware, Iron Oxide, 26 x 13 in.

As a child, I was always drawn to building with Legos, and working in a methodical constructive way had always been second nature for me. In the creation of *Slab Triptych*, I worked intuitively, with no specific content or goal other than an idea for an approach to construction.

The method for constructing sculptural forms out of many smaller clay components became central to my early graduate work at Hood College. I completed my Graduate Certificate exhibition *Quantum Perception* in 2012. *Quantum Perception* continued the themes of the search for truth, but focused on the idea of how people perceive reality. The exhibition included a large 6' wall-hanging portrait of my grandfather, constructed of many small clay slab pieces (Figure 4.). The portrait of my grandfather, for example, appeared abstract when viewed from a close distance, but stepping further back, the viewer reaches a moment of realization as the face suddenly becomes apparent. The portrait represents the many influences one has in becoming the kind of person they are, in this case referencing my family heritage and memories of clay with my grandfather. The

show was also significant because my grandfather attended and was honored by the portrait as a capstone piece in the exhibition.

Figure 4. David Spangenberg and Alex Miller at the Quantum Perception show, 2012.

The theme of *Quantum Perception* that was most significant to the later conception of *Meta Spherical* is the circle, which reappeared in three-dimensional form. There were many spheres and sphere fragments present in the 2012 exhibition. *Soda Fired Sphere* (Figure 1.) stands out because it was my first sculpture to combine the methodology of working with an interconnected

matrix of clay pieces that come together to create a whole sphere. The atmospheric soda firing further enhanced the form by highlighting the outer edges with dark gray carbon trapping and the interior of the form with flashes of oranges and pale creams. The soda vapor in the kiln acted as a flux, melting the surface of the clay to form a glaze. This act of destruction is what creates beauty in the soda kiln. Later I embraced further acts of erosion and destruction in some of the work included in *Meta Spherical*, serving as a counterforce to the acts of construction and formation used to build the sculptures. The opposing forces of construction and deconstruction became a parallel to my own religious deconstruction and formation of new ways of thinking.

1.3 Symbolism of the Sphere

A circle and a sphere share similar symbolism as they are simply two-dimensional and three-dimensional variants of the same shape. My use of the circle first appeared in a series of paintings in 2007 (Figure 2.), when I began contemplating God as a circle metaphor. Circles are a universal symbol that can represent totality, wholeness, perfection[6]. There is no beginning or end, so circles can also represent the infinite. All of these attributes are commonly associated with God, so it is reasonable to have arrived at this thought on my own, even though many before me have done the same. In much of my work relating to circles and spheres, the idea of *wholeness* is referenced.

> As a symbol, the circle expresses the totality of our being. Whether in sun worship ceremonies, in mythological stories, or in religious art, the circle points to the most vital aspect of our existence—its ultimate wholeness. Throughout the ages and in wildly differing cultures, from Stone Age communities to technologically advanced societies, the circle has always evoked feelings of calm and completeness. In his commentaries on our collective unconscious, Carl Jung referred to the circle as the 'archetype of wholeness.'[7]

Some of my early knowledge of circles came from an interest in Japanese sumi-e Zen paintings where the simple, quick ink brush work is often used to paint the ensō, or hand-drawn circle used in Zen calligraphy (Figure 5.). The ensō in Zen Buddhism symbolizes power, enlightenment, and the universe itself.[8]

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[6] J. C. Cooper, *An Illustrated Encyclopaedia of Traditional Symbols* (London: Thames and Hudson, 1992).

[7] Audrey Yoshiko Seo and John Daido Loori, *Ensō: Zen Circles of Enlightenment*, 1st ed (Boston: Weatherhill, 2007), xi.

[8] Seo and Loori, *Ensō*.

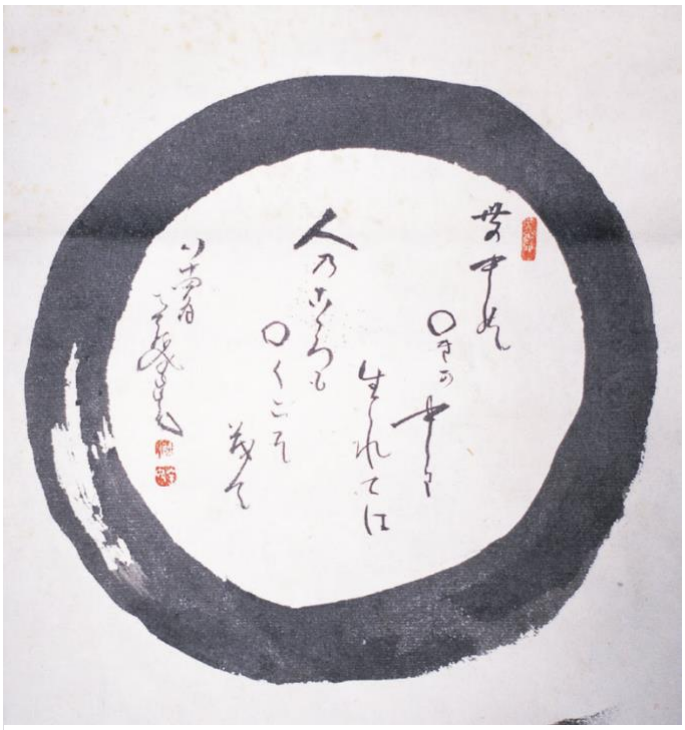

Figure 5. *Ensō, Nantenbō*, 1923, ink on paper, 8 ¼ x 7 in. (Hōsei-an collection). In *Ensō: Zen Circles of Enlightenment*, by Audrey Yoshiko Seo and John Daido Loori. Boston: Weatherhill, 2007, page 81.

A sphere is a circle rotated an infinite number of times on a diameter. Most of the symbolism of the circle can be applied to the sphere. My first intention when beginning to create spherical forms, however, was to create a free-standing sculpture that a viewer could see from all sides. The physical movement of the viewer around the piece offers an ever-changing view of the sculptural form. A perfect sphere is symmetrical from all sides, so the outer form of my work does not change significantly, however, the matrix-like structure and abundant negative space continually provides new perspectives to the viewer.

Another primary symbol of the sphere ties in with my interest in the relationship of cosmology and our place in the universe. The formation of order and organization from the chaotic remnants of the big bang fascinates me. The force of gravity pulls matter towards a center point to create spherical stars, moons, and planets. Celestial bodies revolve in circular patterns created from gravitational pull. Much of the work in *Meta Spherical* references the

gravitationally formed spheres in space as a symbol for natural processes observed in the universe, as an alternative explanation to the biblical literalist view of an earth molded by a creator in seven days.

The studio work presented in *Meta Spherical* is by its definition an exploration, so there are many interpretations of the sphere employed in the sculptures. The most significant meaning behind the sphere, however, is as a representation for *absolute truth*. To me, absolute truth means that whether there is a god or not and what the nature of the god or the nature of a universe without a god is, is not determined by any person's individual belief. Reality exists whether we believe in it or not. A devout Christian, Muslim, Atheist, etc., can all know with great certainty that their view of the world is "true". Incompatible religious beliefs, however, cannot all simultaneously be true. Perhaps there is some truth within every belief system, yet in this universe that we can touch and see and measure, there is most likely one reality, one absolute truth. We as humans are limited to our personal ability to sense and gather information, so it may be impossible to ever fully see and know that absolute truth. None of the sculptures in *Meta Spherical* is a complete, perfect, solid sphere. The work by its incompleteness addresses the limited view we have of absolute truth.

CHAPTER 2: STUDIO RESEARCH

2.1 Goals

The studio research goals for *Meta Spherical* can be broken down into the conceptual and the technical. The conceptual component of the research is in utilizing the creation of sculpture to explore my own personal search for truth as I deconstruct a fundamental religious belief and embrace questioning, doubt, and scientific explanations for our existence. To focus on that exploration, variety in the work is key. The technical component includes three design constraints that must be adhered to in order to unify the body of work and to ensure that it relates to the conceptual goals of *Meta Spherical*.

First, the chosen design language is first based on the spherical form (Chapter 1.3). All of the sculptures in this series must be constrained to a spherical or partially spherical form. Most of the work could be seen as a whole sphere, excepting the generous negative space. By volume, the work tends to be more negative space than positive space. This "incompleteness" of the sphere is integral to expressing the incomplete view of absolute truth any individual person may have. Some of the other work are half-spheres, much more open incomplete spheres, or some just barely hinting at the spherical form (Figure 6.). The partially formed spheres are key to exploring the nature of one's search for a truth that may be just forming or may be in deconstruction.

The second design constraint is that the work is created utilizing many separate smaller components which are then attached together in some way to create the resulting whole form (section 2.3). The conceptual goal for the use of these many smaller pieces is as a metaphor for how one shapes their own view of absolute truth: it is many ideas, experiences, and pieces of

information that come together to shape our views. In most of the work, the clay pieces come together to create a matrix-like structure with open areas of negative space. Some of the work

Figure 6. *What Can Be Built From the Remnants?*, Soda fired stoneware, 9 x 9 x 8 in.

references construction similar to the steel frames of large buildings. Others reference more naturally forming matrix structures which tend to have a sense of movement or a suggestion of something that may be found as part of geological or biological formations.

The final design constraint is that each piece in the body of work should have a sense of weathering, deterioration, or erosion, all of which suggest a larger time scale of existence and further reference the conceptual theme of deconstruction. Some of the work was created through

destruction: broken pottery, broken bone-dry extrusions, or bone-dry clay slaked into water. Most of the work utilizes surface treatment to show deterioration. Various layers of slips, stains, or underglazes, are eroded with water prior to firing. The majority of work in this show is fired in an atmospheric soda kiln where the soda vapor acts as a flux and melts the outer reaches of the clay. The surface erosion processes act as a means to enhance the depth of the work by highlighting the outer-most elements of the sculptures with different coloration and texture.

The technical goals for the work are primarily focused on supporting the conceptual and design goals. The most important technical goal is for the delicate sculpture to be sturdy enough to survive construction, drying, firing, and transportation for display in the exhibition. At each stage, every aspect of my methodology must be carefully considered to ensure that the work not only survives, but also achieves my thematic goals.

2.2 Selection of Materials

The exploratory nature of the work in *Meta Spherical* combined with the tedious construction methods must be balanced by simplicity. As a result, commercially available materials were selected when possible. The most critical was the selection of clay body. The clay had to perform well in a variety of conditions. Due to the time-consuming nature of construction, it was necessary to choose a clay that did not shrink or warp too much during drying, to avoid cracking between newly added sections of the work. The clay must also remain durable during all stages of drying and firing due to the delicate nature of the sculpture. I have narrowed the clay down to three specific bodies: Standard 508 wood fire and Highwater Trina Buff, which are both cone 10 stoneware clays, and Highwater Red Stone, which is a mid-fire stoneware.

It is important that clays for the cone 10 soda kiln receive good coloration from the atmospheric firing. Groggy sculpture clays often do not have the texture that I prefer, and tend to not flash as well in the soda-firing atmosphere. The decision was made to go with Standard 508 wood fire clay as my primary clay body based on a comparative test in which I fired six clay bodies (ranging from porcelain to sculpture clay) having a variety of surface treatments in a soda kiln (see Appendix. CLAY AND SURFACE TESTS). In that test, Standard 508 stood out as a clay that was balanced in the areas I was looking for: strength for a variety of forming methods (based on multiple earlier works created with this clay) and reaction to the soda atmosphere. The dark grays and blacks on the outer surfaces of the clay receiving the most soda and carbon trapping contrast well with the lighter tan colors offered by areas of clay receiving less soda, with lovely flashes of oranges and browns with some speckling in between (Figure 7.).

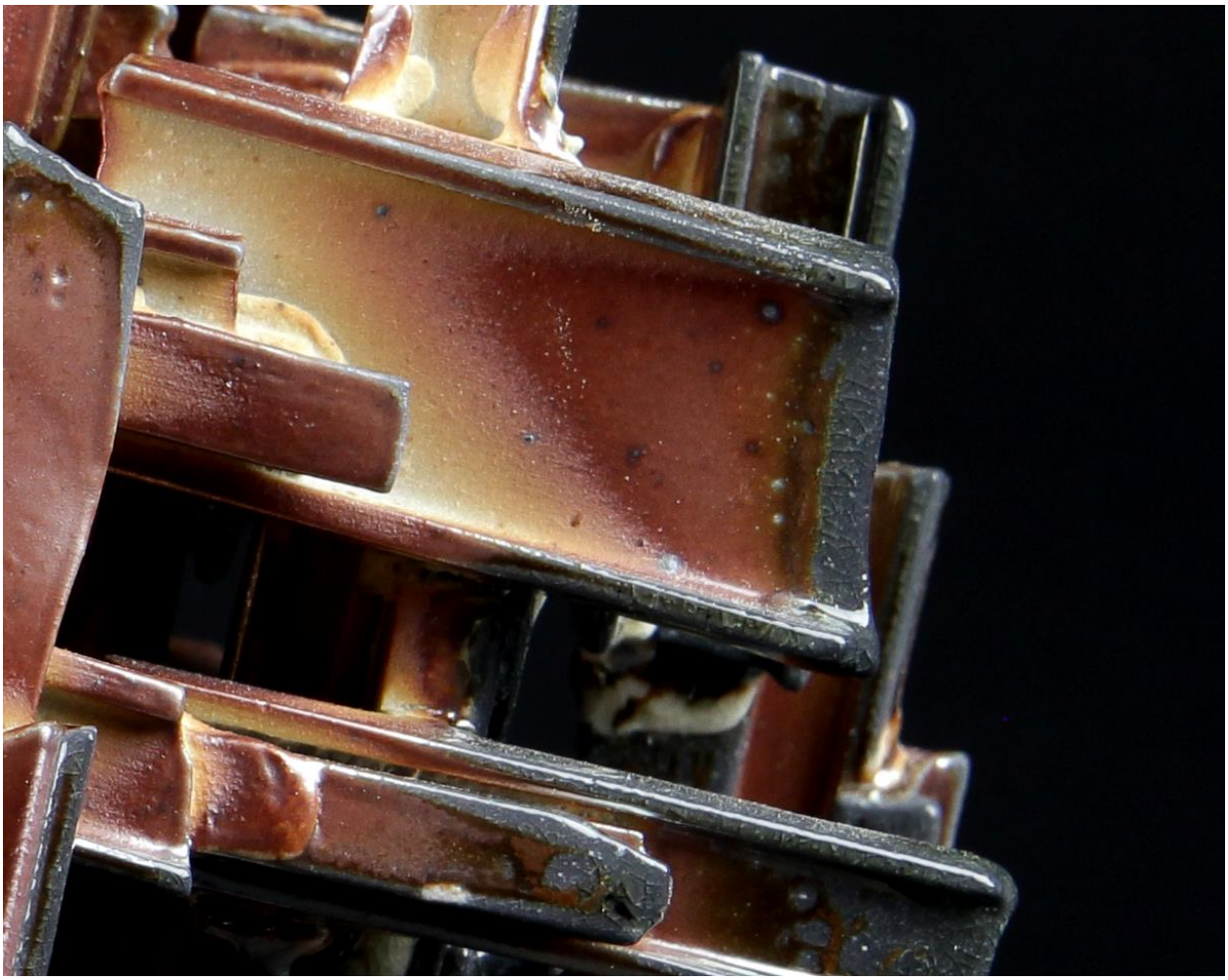

Figure 7. Detailed view of Standard 508 clay fired in atmospheric soda kiln

The only area that I was less pleased about with Standard 508 was in its tendency to go glossy under certain conditions (too much soda). After trying a variety of clays, I found Trina Buff to be an excellent complement to 508. Trina was a little bit darker with some iron in the body, which gave earthier coloration. What drew me to the clay, however, was how it handled larger amounts of soda application. Rather than going glossy, Trina tended to have a matte surface under heavy soda, still with a nice range of flashing in areas receiving less soda (Figure 8.).

Figure 8. Detailed view of Highwater Trina Buff fired in atmospheric soda kiln

It is not necessary that all of the work in *Meta Spherical* be fired in the same way, so long as the design constraints (section 2.1) are met. I tend to prefer a soda atmosphere for how it highlights the depth of the sculpture, though, all of the colors tend to go towards more neutral earth tones, even when brighter colors (underglaze, etc.) are applied. While the earth-tone aesthetic works well, I am seeking variety and bolder coloration in some of the work, so in those cases, cone six oxidation firing is preferred. Firing in an electric kiln is also advantageous with work that may be too large or delicate to fit into the soda kiln stack. I have experience working with Highwater's Red Stone clay having selected it for use in my high school art classroom. A variety of clays were tested in the classroom setting, where durability and reliability are

especially important for student work. Red Stone was selected for its rich reddish-brown coloration, and more importantly, low shrinkage (10% at cone 6) and reduced cracking and improved strength due to an addition of 6% kyanite[9]. Red Stone was selected because the characteristics for classroom use closely match my own requirements for sculpture clay.

The only other materials specifically chosen for the work relate to the surface treatment. For the mid-fire work, I chose to use Amaco Velvet underglazes since they can be applied to the clay while leather hard or bisque fired. The underglazes also have very bright, reliable colors and a very wide firing range. While at times soda-fired pieces had no surface treatment other than the results of the firing, I also used underglazes on some of the soda fired work. This resulted in subtler colors than the mid-fired pieces, but much more vibrant colors than are offered with bare clay or slips. Oxide stains are sometimes applied to the work in thin washes. For example, a diluted copper carbonate wash is sometimes applied to the soda-fired work because it can add darker blacks in some areas, while flashing cranberry red with the right combination of soda and reduction in the firing. Lastly, some of the work features what I am calling anti flashing slip which is simply kiln wash (50% alumina hydrate, 50% EPK). When applied thin to leather hard clay, the high levels of alumina resist the effects of the soda atmosphere, constraining those areas to a matte white surface, while allowing stains or other colors to be more apparent.

[9] "Highwater Clays: Red Stone (C3-6)," accessed July 4, 2018, https://www.highwaterclays.com/index.cfm/product/249/red-stone-c3-6.cfm.

2.3 Units of Construction

As a critical design constraint for *Meta Spherical*, all sculptures are created from many smaller units of construction. Each piece of clay must be first formed, cut, trimmed, or broken down. Then those pieces are assembled similar to how one might build with Legos—piece by piece. Generally, for a given sculpture, the individual units tend to be of a similar size, which helps with consistency both aesthetically and structurally. There are three categories of units used for construction in *Meta Spherical*: slab-formed, extrusions, and broken pottery.

Slab-forming the units of construction was my earliest and most utilized approach. A double-roller slab roller compresses the clay from both sides, which improves structural strength as the clay particles (platelets) are compressed and aligned. After rolling, the slab is then compressed on both sides with a flexible plastic smoothing rib to eliminate the canvas texture that remains from the fabric used to roll the clay and to further improve the strength. The clay is then allowed to dry slowly on drywall panels. The gypsum used in drywall draws moisture from the clay, allowing the slab to dry more evenly from both sides to reduce warping of the slab. Once the clay is a flexible leather hard consistency, it is typically cut into rectilinear shapes that range in size and proportion depending on the scale of the sculpture (Figure 9.). At times, the slabs were cut into more angular pieces or even left as trimmings which were used to explore forming methods not confined to right angles.

Figure 9. Detailed view of rectilinear clay units assembled in a partially completed sculpture

Extrusion is used when I need a more precise or uniform shape which is then cut into varying lengths. I did not use the pre-made extrusion plates that came with my extruder because those shapes seemed generic and had overly rounded corners. I used Adobe Illustrator software to draw my own custom shapes, which were then laser cut into 3/8" thick acrylic using a Glowforge[10] laser engraver and cutter. The book, *Ceramic Extruding*[11] offered some helpful resources for making custom dies. There are two primary extrusion patterns that were designed for use in *Meta Spherical*: equilateral triangles and I-beams (Figure 10.). The equilateral triangle was selected out of a desire to break away from the right-angle geometry offered by the

[10] https://glowforge.com/

[11] Tom Latka and Jean Latka, *Ceramic Extruding: Inspiration & Technique* (Iola, WI: Krause Publications, 2001).

rectangular slab units. The three equal sides of the triangle aided in attachment during construction, as any side could be used to adhere additional clay pieces. By laser cutting my own

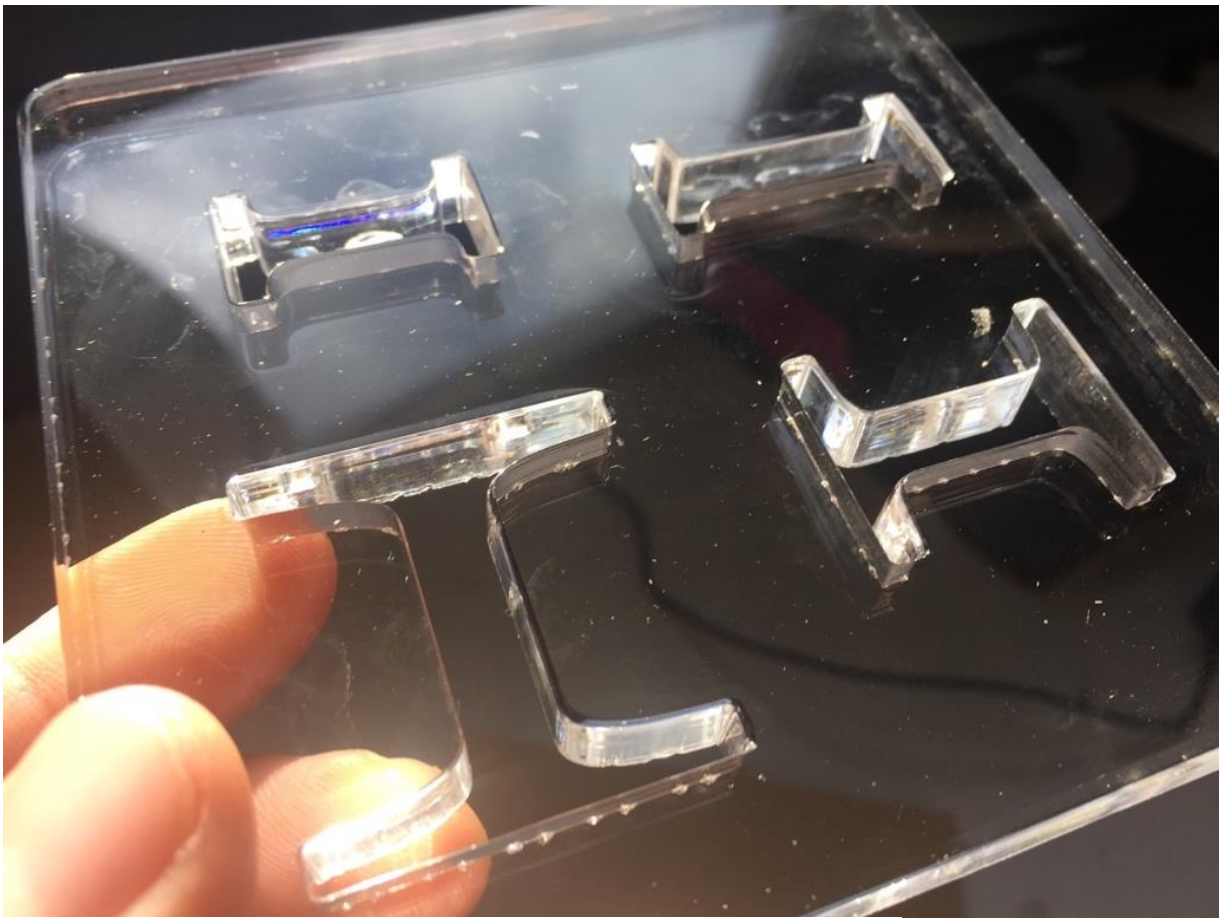

Figure 10. Detail view of laser cut I-beam extruder die, 3/8 in.

shapes, I was able to produce extrusions with much sharper corners than typically seen in commercially available extrusion dies. The narrower 60 degree angles of the triangle compared to the rectangle also served to enhance the play of light, shadow, and atmospheric flashing on the sculptures. When used in a flexible state, the triangular extrusions left bold, crisp visual lines as the pieces twist and curve within the sculpture.

The I-beam series of extrusions (Figure 11.) were intended to reference man-made structures and serve as a metaphor for man-made ideas and knowledge. The I-beams were sometimes used in their flexible state to suggest something bent or melting, but more often the I-beams were used in a stiff leather hard state. The firmer I-beams were conducive to a more geometric structural aesthetic that references the steel structures used in commercial buildings. The only other extrusion present in *Meta Spherical* is a crucifix shape based on the proportions of the Christian cross, which allowed a much more direct conceptual reference to my experiences with Christianity.

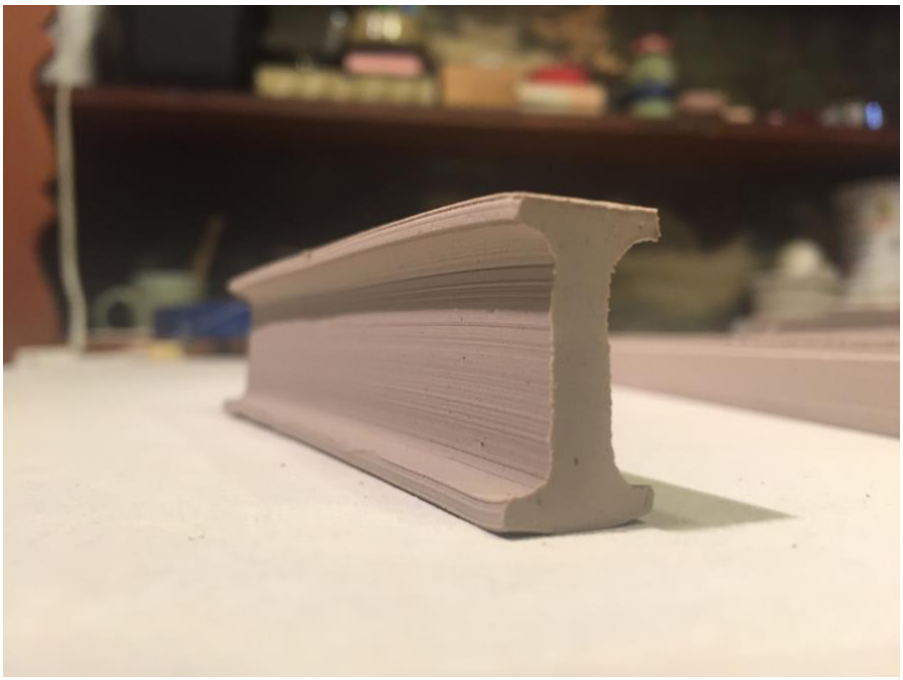

Figure 11. I-beam extrusion in clay

Lastly, as part of my exploration of ideas within the scope of *Meta Spherical*, I created a clay pot in a classic open jar shape, allowed the clay to dry, then held the clay vessel above the pavement and intentionally dropped the pot allowing it to shatter (Figure 12.). The resulting broken pieces were then collected and assembled into a spherical sculpture (Figure 13.).

Figure 12. Alex Miller dropping a bone-dry pot, also a reference to Ai Weiwei[12]

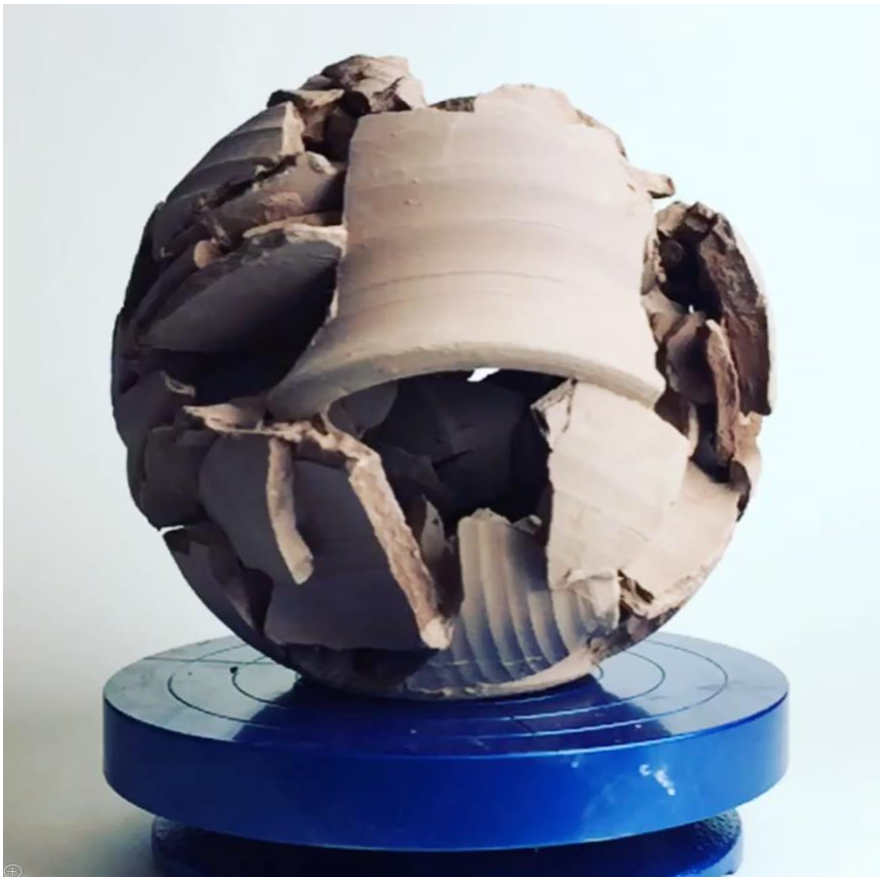

Figure 13. The reassembled pieces of the broken bone-dry pot

[12] Ai Weiwei. Dropping a Han Dynasty Urn. 1995

2.4 Construction Technique

The construction units in *Meta Spherical* are generally adhered with an application of slip, scoring where necessary for strength. The spherical structures are built inside of plaster hemispherical molds[13] and are then removed from the molds for bisque firing. For the work in the Solace series (section 3.4), the more flexible, triangular clay extrusions are adhered then smoothed together, sometimes with the addition of soft clay to blend the joints. The bone-dry work is adhered using paperclay[14] slip.

To pair with each of the clay bodies employed in my work, I create a slip from the same clay with which I am building a piece. The process begins with drying small scraps of the clay which are then slaked into water. This is then mixed using a kitchen blender. Additional clay or water is added as needed to produce the desired viscosity, which is as thick as possible while still being pourable when agitated. This allows the slip to be brushed on at any angle without dripping excessively. To avoid cracks in the joints from the clay slip shrinking as it dries, it is necessary to deflocculate the slip to increase the amount of clay in the mixture relative to the amount of water; less water means less shrinkage while drying. My method for deflocculating the slip is simply to run the blender to create a vortex, into which I use a dropper to add sodium silicate solution a few drops at a time (typically 10-20 drops per quart of slip). As the sodium silicate causes the slip to deflocculate, the mixture becomes less viscous, which then allows me to add more dry clay to the mix until the slip becomes almost too thick for the blender. I repeat this process 2-3 times to create a slip of my preferred level of viscosity and deflocculation.

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[13] Andrew Martin, *The Essential Guide to Mold Making & Slip Casting* (New York: Lark Crafts, 2007).

[14] Paperclay slip is a mixture of clay slip with added cellulose fibers to increase strength and reduce shrinkage.

Exacting precision beyond this level is unnecessary. In my testing, some variation in the slip has little effect on the strength of the sculptures for my purposes.

Before beginning any of the sphere sculptures, hemispherical molds must first be created. I made a series of molds (Figure 14.) ranging from 2" diameter to 20" diameter, the maximum size that would fit into the kiln in my studio. Most of the molds were created by casting the top and bottom half of a ball (playground balls, etc.) in pottery plaster. By having a matching set of hemispherical molds, I am able to more easily rotate or invert the sculptures inside of the molds during construction. The mold forms are necessary to provide a geometrically precise outer form for the sculpture. Often the corners and outermost parts of the sculpture are pressed into the mold, curving the corners which begins to create a more cohesive outline of the sphere.

Figure 14. A selection of plaster hemisphere molds

The first step in creating most of the sphere sculptures is to consider the physical strength afforded by the structural design of the piece. The matrix-like structures employed in most of the

Meta Spherical works are interconnected in many places, which distributes the load and allows for a strong overall form. Pieces at the outer edges of the sculpture are the weakest because they are not connected to as many other parts. Every sculpture has its own design "rules" that must be followed in construction. These rules are often improvised and adjusted as part of my personal exploration in *Meta Spherical*. For example, many of the spheres constructed of rectilinear pieces tend to have a dominant direction in which most of the pieces are oriented, with only some deviation from that. Or, for the *Solace* series created with flexible extrusions, every piece must be curved and cannot connect at a 90-degree angle, but rather should merge or diverge naturally like the ramps of an interstate (Figure 15.)

Figure 15. In-progress detail of sculpture from Solace series, constructed with flexible triangular extrusions

Any core structural components or connections having less surface area are scored on both sides then slip is applied for connection. In other areas, it is adequate to simply apply slip with vigorous brush work to both components, which disturbs the clay surface enough to allow better adhesion. Many of the pieces attached without traditional scoring also have plenty of surface area connecting the two pieces. As can be seen in Figure 16, the sculpture on the left is created with rectilinear components and has reached the half-way point of completion. Each of the pieces in the left sculpture typically has multiple attachment points which increase structural strength as the sculpture reaches completion. The in-progress piece on the right (Figure 16.) is at the early stages of construction, where each clay component has fewer attachment points. At this stage of construction, nearly every surface is thoroughly scored and slipped to increase strength.

Figure 16. Two sculptures in construction: left is completed to the hemisphere, the right is at the beginning stages of construction

As the sculptures progress, it is necessary to maintain an optimum level of hydration. The newly added clay components must be of a similar level of dryness as the existing structure of the sculpture, which is typically at the leather hard stage. This ensures that different areas of the sculpture will not shrink at different times, which would cause cracks. When the sphere sculpture fills the entire hemisphere mold, the mold is tilted to relieve some of the weight and rotate the sculpture carefully within the mold. This opens access to new areas of the hemisphere mold allowing me to construct additions to the sculpture. I continue the process of rotation and construction, pausing for drying time for the slip, until the desired form is complete.

For the sculptures created with bone-dry clay a slightly different approach is required. First, bone dry clay has already shrunk more than hydrated clay. If I used regular clay or slip to connect the pieces, the connection is weakened as the wet clay shrinks. To overcome the issues of clay shrinkage I create paper clay[15] slip by mixing slip as described above, then blending in cellulose fiber. The paper fiber is simply bathroom tissue that has been soaked in water overnight, then blended into a slurry. The volumes are estimated, but generally I use a ratio of approximately one cup of paper slurry to two cups of slip. Due to the addition of organic material, this slip has a more limited shelf life, however, the addition of a few drops of bleach or hydrogen peroxide can extend the shelf life of the paper clay slip by preventing bacterial growth. I then take a portion of the paper clay slip and pour it out onto plaster to dry until it is a paste consistency. Use of the two versions of the paper clay slip is instrumental in successful construction with bone dry clay. First, the more viscous slip is brushed onto both bone-dry pieces being connected. It is important to work quickly because the dry clay quickly absorbs the moisture from the slip. The paper clay paste is then used to fill in any gaps in the connection area

[15] Kathleen Standen, *Additions to Clay Bodies*, (Westerville, OH: American Ceramic Society, 2013).

since the dry clay has no ability to bend to conform to the shape of the other part. The addition of the cellulose to the clay reduces shrinkage and also helps the slip hold onto both surfaces of the clay. The bone-dry sculptures are of course very delicate, but they have the added advantage of already being dry (no need to cover them), and if there are any broken components, they can be fixed using the same method as used in paperclay construction.

An additional variation of working with bone-dry clay is explored in a few of the I-beam sculptures (Figure 17.). Clay I-beams are allowed to dry and are crumbled and broken into a hemispherical mold where water is then poured over the clay, partially slaking down the clay. Some of the I-beams remain intact, however, much of the clay collapses into smaller pieces or even into piles of slip. The water is then allowed to evaporate, revealing what looks like the scene of a destroyed and weathered construction site. When the slaked piece reaches a firm leather hard state, I then begin construction directly onto the slaked base in the hemisphere mold. The use of destructive techniques, such as slaking dry clay, is integral in exploring themes of how deconstruction can lead to new forms of construction, which happens in this series both literally and metaphorically. A variation of the use of destructive processes to create sculpture can be seen in some of the work created with freshly extruded clay. In the installation *Corporate Worship* (Figure 18.) I-beam extrusions were cut and physically thrown or dropped from a distance into the hemisphere mold. The force of impact between the soft clay pieces is enough for sufficient adhesion.

Figure 17. Slaking bone dry clay I-beams in hemisphere mold. This entire sequence happened in less than 5 minutes.

Figure 18. *Corporate Worship* Installation. 30 in. x 30 in.

Another technique explored in the studio research is in the use of sanded slip as a construction medium. Inspired by the extrusion process utilized by 3D printers, clay slip is hand squeezed from a condiment bottle into a plaster hemisphere mold. Additional layers of slip are slowly added as each previous layer dried enough to support more clay. This process is repeated

until a spherical form is produced. The addition of sand to the slip is a reference to my own childhood memories of slowly building sandcastles by dripping wet sand layer by layer.

Before a sculpture can be finished, consideration must be made for how it can be safely removed from the mold and placed in the kiln. For the more delicate work, a bowl-shaped base support is created with a curve that matches the sphere sculpture. Once a sculpture is complete, it is allowed to dry very slowly in the mold until the clay is a firm leather hard (dry-built sculptures can come out of the mold right away). The stiff clay sculpture is then gently rolled out onto layers of soft foam padding, where the sculpture can be carefully rolled to allow access to all sides for any touch up work. For the more delicate work, the sculpture is gently transferred directly to the bowl-shaped base which provides an evenly distributed support for the sculpture. Since the base is made from the same clay body as the sculpture, they will continue to shrink at the same rate during drying and firing. For most of the work that has been transferred to the foam, a support base is still created which is typically wheel-thrown as a sturdy bowl shape having a flat base and a closely matching curve. Silica sand is placed in the base, then the sculpture is gently placed into the bowl (Figure 19.). The sand helps to distribute the weight of the sculpture so that even the more delicate components are not damaged.

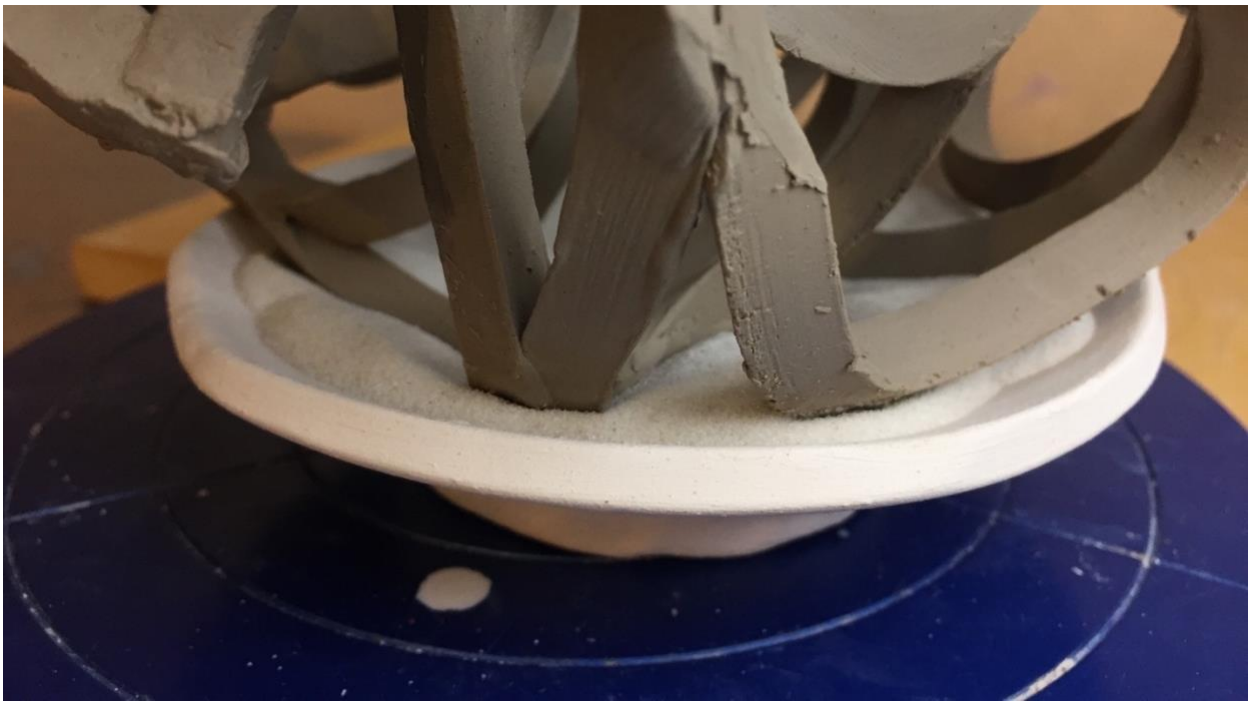


Figure 19. Wheel-thrown support bowl with silica sand supporting a delicate sculpture

Chapter 2.5 Surface Development

The first goal for the surface treatment of the sculptures in *Meta Spherical* is to enhance the forms and accentuate the depth by highlighting the outer areas of the forms with flashing or coloration different from what is seen in the recesses. The second goal is for the surface treatment to provide a sense of age, deterioration, erosion, or wearing of the piece. One reason for the need for surface deterioration is to reference the massive time scales of the cosmos. When I consider a notion of absolute truth of the nature of the universe, I am humbled by how diminutive our place is within time and space. It is important for the sculpture to reflect that sense of time and distance. To me, the firing process for ceramics is similar to ancient geological processes that form rock in the earth, only at a greatly increased speed due to the heat of the kiln. I want the sculpture to reflect a worn and possibly ancient quality to represent the large time scales in formation of the Earth and of the cosmos at large. Another reason for the use of deteriorated surfaces is to directly reference the conceptual themes of deconstruction being explored in this research. I often consider my own deconstruction of beliefs which seem to constantly be "weathered" by new insights or information that go counter to the ideas I had previously constructed. Even as I build new views on how to reconcile science and religion, these ideas seem to be subject to a constant barrage from people that may disagree with me. The tension of the positive, building and constructing new ways of thinking, contrasts with the negative, the loss of things I once held as true.

The most significant source of variation in the surface development of the sculpture in *Meta Spherical* is the firing; some of the work is fired at cone six in an electric kiln, and a majority of the work is fired in a cross-draft soda kiln (section 2.6). The surface treatment

differs between work intended for the two firings. For the electric fired pieces, more attention is given to the surface prior to firing because electric kilns typically do not impart much change to the surface, other than any coatings applied to the work. In the soda firings, much more attention is placed on the firing itself which has a much greater effect on the surface of the work. Typically, sculpture with any applied coatings are eroded via water blasting prior to either firing process.

My primary approach for the electric fired work is to spray multiple layers of commercial underglaze onto the bisque fired sculptures using a siphon spray gun. I typically apply 3-4 layers with a short drying time in between. The surface is then eroded prior to firing. I experimented with multiple methods of surface erosion. There are a number of ceramists that erode their fired or unfired surfaces by sanding or scraping, which reveals multiple layers of color and highlights the texture. These artists are often working on solid sculptures or pots. Jamie Bates Slone is one artist working this way, sanding her figure sculptures prior to firing[16]. Another artist working with eroded layers of the ceramic surface is Jim Connell, who fires his work and then sand blasts it, which enhances the matte qualities of the surface and highlights the ridges and lines visible in his pottery. My approach differs in that I am eroding the surface prior to firing using water blasting. When the layered and eroded surface technique is applied to the interconnected matrix-like forms, a greater sense of depth is achieved.

I experimented with various approaches to surface erosion before arriving at water blasting (Figure 20.). I immediately discounted any type of surface sanding or scrubbing since it would be very ineffective at eroding the surfaces within the negative spaces, so some form of spray or media blasting was my best option. My primary concern with sand blasting is that my

[16] Jamie Bates Slone demonstrates her sanding technique on a post she made on her Instagram feed: https://www.instagram.com/p/BRwHLbzgeB8/?hl=en&taken-by=jamiebatesslone

work is too delicate, and sand could become lodged within my complex sculptures where it would be difficult or impossible to remove prior to firing. Sandblasting also typically uses specially engineered aggregates rather than sand due to the dangers of inhalation of silica. It was important for me to consider the hardness of the media for blasting since my work is delicate. The dried layers of underglaze, however, require at least some level of abrasiveness in order to be removed in a controlled fashion. I narrowed the media down to two choices: sodium bicarbonate and walnut shells, which are both categorized as soft aggregates[17]. Sodium bicarbonate is one of the components used in soda firings, so any remaining particles would act as a flux without damaging the sculpture. The finer dust is easier to clean out of the sculpture with compressed air, so it is suitable for electric firing as well. Walnut shells have a larger particle size and are fully organic so any particles remaining inside a sculpture would simply burn out in the firing.

[17] "I_J_Abrasive-Media-Guide.pdf," accessed July 5, 2018, https://ibixusa.com/pdf/Training/I_J_Abrasive-Media-Guide.pdf.

Figure 20. Beginning the water erosion process

Testing of the media blasting technique was performed on a small bisque fired form created with slab units, then layered with underglazes and allowed to dry. Using a compressed air media blasting gun, testing began with the walnut shells which, despite having a similar hardness level to sodium bicarbonate didn't remove any of the dried underglaze layering. The use of sodium bicarbonate was much more successful. I was able to achieve a very controlled

erosion of the underglaze layers. The media blasting method also offered me a very directional effect on the erosion, which highlighted the shapes of the units of construction much more than an omnidirectional effect would have. The use of soda blasting had two major drawbacks. First, the dust generated during blasting makes an excessive mess that is difficult to clean up. The fine particle sizes do not work well with the standard collection systems used in media blast enclosures available at the consumer level. The second problem is that the moisture present in the compressed air caused the soda to often cake up and clog the gun, slowing the work enough to make it largely impractical.

I arrived at the method of water blasting during a happy accident. I was coating some new test pieces with underglaze in preparation for experimentation with additional blast media options when I mistakenly got too close to the sculpture with the spray gun, and the pressure of the liquid hitting the work at close range began to erode the previous layers. As a result of the unintentional experiment, I simply began to use the same siphon spray gun filled with water to erode the layered surfaces. The use of water erosion offers a few advantages. Safety is significantly improved since the water simply collects any excess eroded materials into the drain of the spray booth. By comparison, dry media blasting forces the excess ceramic material to become airborne. In addition, cleanup becomes much simpler since all work happens inside of the spray booth. There is also no problem with remaining blasting media getting stuck inside of the sculptures—excessive water simply runs off or evaporates. Another advantage to the use of water is a more natural color layering effect: dry media blasting removes color sometimes revealing crisp bands of varying colors, whereas water erosion slightly blends the colors together. My method for using a siphon spray gun as an erosion tool offers me steady control for the desired level of surface deterioration.

For the soda fired sculptures, it is important to me that the effects of the atmospheric firing itself be the prominent surface treatment. Many of the pieces have no applied surface treatment at all before firing. For example, as can be seen in Figure 6, the use of Standard 508 clay achieves a successful result; there is a wide range of contrast between the gray-black areas most affected by the soda and the more protected inner surfaces of the sculpture. For some of the work, small amounts of copper carbonate stain are applied which enhances the blacks in the recesses of the sculpture and can change to cranberry red with sufficient reduction in the firing. Commercial underglazes, layered and water eroded, can be seen on a few of my soda fired sculptures (Figures 22.), which seem to offer a nice compromise between the earthy-neutral tones of the atmospheric soda and the brighter, more saturated hues of the electric fired work.

2.6 Firing

The work created for the exhibit *Meta Spherical* is typically very time consuming, which means that I am faced with infrequent and high-risk firings. One kiln load may have months of work that depend on a successful firing. In order to help alleviate this problem, I make wheel-thrown whiskey cups to help fill the kiln. These cups are especially critical to the soda firings because the placement of ware in the kiln has a dramatic effect on not only evenly heating to the correct temperature, but also how the soda moves through the kiln and on the results of the work. The placement of the cups can be used to help direct the gas flow in particular directions. The cups are easy and fast to make, and also have a tongue-in-cheek connection to *Meta Spherical*; the whiskey cups are designed specifically to hold ice spheres.

When considering how to dry, load, bisque fire, and safely transport my sculptures to the final firing and beyond, I must carefully consider all aspects of the process. First, as mentioned in section 2.4, much of my still leather hard sculpture is placed into bowl shaped support bases filled with silica sand. When possible, I avoid letting the work completely dry until it is already loaded into the kiln; it is much safer to handle firm leather hard clay than brittle bone-dry clay. Once the clay is safely in the kiln, it can dry slowly and evenly without risk. I also bisque fire the kiln to a hotter-than-typical cone 04 temperature so that the work is slightly denser, which makes it stronger for surface treatment and transportation to the soda kiln. When work is final fired in the electric kiln, I will sometimes fire to cone 3 (the lowest recommended temperature for the Highwater Red Stone clay body) when I desire brighter underglaze colors, however most of the time is fired to cone 6 for increased vitrification and strength.

All of my soda fired work is brought to Hood College where I utilize the wood/propane hybrid crossdraft kiln. This kiln is preferred for my work first because of its small size; if I used a much larger kiln it would take too long to fill the kiln with my time-consuming sculpture. The second advantage to this particular kiln is in its cross-draft layout. The burners directly face the stack of shelves in the kiln, with wood/soda access ports right in front of the burners. This layout results in very directional effects of the soda on the work. I can intentionally place work knowing the direction the soda will move, which gives me more predictable results in an otherwise serendipitous process. The directional soda also allows the shielding of pieces if I desire more or less soda on any given piece. Firing in the Hood College kiln pavilion also has a significant personal connection for me. I was among the last students to use the old kiln yards where we were rained and snowed on, and I was among the participants who built the new kilns and benefit from the new pavilion. I have also really learned the soda firing process, and specifically how this crossdraft kiln operates, through my experience in the Hood graduate program and the many group firings of which I have been a part. Much of my success with soda firing can also be attributed to knowledge gained from both Tudball[18] and Nichols'[19] excellent books on soda firing.

The soda firing process relates directly to my conceptual themes of construction and deconstruction (see Section 2.5 Goals). My interest in soda firing was a natural fit with my interest in cosmology and formation of the Earth. I often ponder the balance of chaos and entropy with the notion of order or design; this is a direct parallel to firing an atmospheric soda kiln where there is that same balance of control and chance in the results of the work. I have

[18] Ruthanne Tudball, *Soda Glazing* (London; Philadelphia: University of Pennsylvania Press, 1995).

[19] Gail Nichols, *Soda, Clay and Fire* (Westerville, OH: American Ceramic Society, 2006).

always loved how the soda paints its own effects within the kiln, while the operator moves bricks, burners, and baking soda about in some attempt to rein in the results. It is always exciting to unload a soda kiln and see the results. I feel that the balance of control and chance parallels the concepts explored in *Meta Spherical* of knowing and doubt, of questions and answers.

My firing technique in the soda kiln embodies two goals: contrast and efficiency. I tend to use a moderate amount of soda in each firing, though the precise amount is not imperative as I am open to a wide range of possible results. What I always hope to see is contrast between the areas most affected by soda and the more protected surfaces. Having a higher level of contrast adds more depth to the work, and when coupled with the directional nature of the crossdraft kiln, creates work that offers unique views from all sides. To achieve higher contrast with clay that is naturally a lighter stoneware, I need to increase carbon trapping. I will typically cycle the kiln past cone 06 in phases of heavier reduction, often initiated by the addition of more fuel in the form of wood. I also tend to fire down at the end of the firing for an hour or two, when the kiln is cooling, and wood is continually being added with the burners off. The problem with firing in a reduced oxygen atmosphere, however, is inefficiency and excessive fuel consumption. Out of my concern for environmental sustainability, I hope to fire as efficiently as I can. When I am not specifically firing in reduction, I aim for a very neutral atmosphere[20], which means that I have a balance of fuel and oxygen that provides increased efficiency for heat rise.

[20] Nils Lou, *The Art of Firing* (London; Oviedo, FL: A & C Black ; Gentle Breeze, 2003).

CHAPTER 3: BODY OF WORK

3.1 Overview

The body of work *Meta Spherical* displays a wide range of exploration and experimentation. The variables including the units of construction, construction techniques, surface treatment, and firing. All of the work, however, fits within the constraints of the design language: reference to the spherical form, assemblage of many smaller units to form a whole, and the use of deteriorative processes. While classification of this wide-ranging work is inexact, the body of work can be divided into three series: *Constructive, Transformative,* and *Solace*.

The *Constructive* series came from my earliest explorations that shaped the research of *Meta Spherical*. These are all works created with individual pieces of clay crafted for the sole purpose of being a unit of construction, like a brick is to a house. The *Constructive* work is built by methodically attaching the pieces to one another until the desired form is achieved. The *Transformative* series has a wider range of approaches. Each piece either was once something else which has been changed in some way to become a new form, or the sculpture may represent a conceptual transformation of some kind. The *Solace* series represents a marked departure from the other work and is the newest style of construction that resulted directly from the research of *Meta Spherical*. The *Solace* series are typically constructed of triangular extrusions which elegantly flow and curve, connecting to form a more cohesive whole. There are many explorations within *Meta Spherical*; included in this chapter are representative selections from each series.

3.2 Constructive

The *Constructive* series is typified by the interconnected matrix of individual clay pieces resulting in a sphere or sphere fragment. This way of methodically building has always felt natural to me. Creating these sculptures is like being a child building with Legos. Each single piece is crafted for the sole purpose of becoming a part of a great whole, like a pixel is to a digital image. The pieces matter because without them, the form does not exist. Each piece can have a conceptual value as they may represent many ideas, experiences, or pieces of information that one combines to create their belief systems about the world, but the value is not realized until the pieces have been included in a constructed form.

The units of the *Constructive* series range from hand cut slab pieces (Figures 21. & 22.) to I-beam extrusions (Figure 23.), or to experimentations with sanded slip. This series of work represents my first explorations in expressing my experience and thoughts about religious deconstruction, my first attempts to reconcile religious beliefs with science based explanations for our existence. The sculptures in this series address the way people construct their world view based on many different influences, ideas, experiences, and pieces of information. Every piece in a sculpture represents a significant moment that a person has incorporated into how they see and experience the world. Some of these works are more complete spherical forms, while some only hint at the possible sphere. The range of 'completeness' is integral in expressing how our ideas may be closer to or further from absolute truth.

Figure 21. *Evolution of Fundamentalism*, oxidation fired stoneware with eroded underglaze, 8 x 8 in.

Evolution of Fundamentalism (Figure 21.) speaks to my first experiences learning more about the science of our universe, particularly evolutionary biology, and the distances and time scales of space. This use of the word evolution in the title is a reference to how contentious the belief in evolution is for many Christians, and my own personal evolution away from fundamentalist religious thinking. The choice for the color blue was inspired by blue giant stars[21]. They are striking for their immense cosmic scale and the cool blue light contrasted

[21] Stephen Hawking, *The Illustrated A Brief History of Time / The Universe in a Nutshell - Two Books in One* (New York: Bantam Books, 2007).

against our own warm colored sun. The color blue is also a reference to Carl Sagan's book, *A Pale Blue Dot*[22], which references the tiny scale of the blue ocean-covered Earth compared to the expanse of the universe. I love imagining the small end of cosmic scale compared to the blue spheres on the largest end of the scale. The contrast offered by the bright blue hues and the eroded exposed areas of red-brown clay on the sculpture represent those first stages of religious deconstruction I experienced. It is not possible to simultaneously hold a view of a young-earth seven-day creation with the knowledge of the true age and expanse of our universe without experiencing cognitive dissonance[23].

Figure 22. *Crystallization of Unknowing,* soda fired stoneware with eroded underglaze, 9 x 9 in.

[22] Sagan, *Pale Blue Dot*.

[23] Mike McHargue and Rob Bell, *Finding God in the Waves: How I Lost My Faith and Found It Again Through Science* (New York: Convergent Books, 2016).

Growing up in a traditional fundamentalist form of Christianity, I have often heard creationists posit that the universe can only move towards entropy without supernatural intervention. It is true that there is chaos and entropy in the universe and here on Earth. However, when considering this entropy argument, I have often thought about the force of gravity and how it can pull immense amounts of loose space debris or cosmic dust into a sphere close to geometric perfection[24]. This, of course, isn't an occurrence of random chance; the physical forces innate in our universe have pulled matter into billions upon billions of spheres spinning about space. The other thing I consider when thinking about the entropy argument is crystallization. Millions of years of heat and pressure on the right combination of elements can form naturally occurring crystalline structures. This process can be seen in the formation of crystalline structures on a molecular level in ceramics[25]. *Crystallization of Unknowing* (Figure 22.) is my sculptural exploration of the notions of entropy and order in our universe and the implications for a personal world view of science and religion. The "unknowing" in the title speaks to the acceptance of uncertainty rather than claiming a false answer for the sole purpose of maintaining my former form of religious belief. To escape from cognitive dissonance, I must let go of beliefs that are at odds with more reliable truth. As I let go of fundamentalist thinking, my own understanding of reality is moving towards order, just like crystals forming within an amorphous medium.

Another exploration within the *Constructive* series is in the use of the I-beam extrusions. These reference steel I-beams used on commercial construction, and are a metaphor for ideas and beliefs that are either entirely man made or learned only from other people. In my observation,

[24] Neil DeGrasse Tyson and Donald Goldsmith, *Origins: Fourteen Billion Years of Cosmic Evolution* (New York: W. W. Norton & Company, 2004).

[25] Daniel Rhodes, *Clay and Glazes for the Potter*, Rev. ed. (Philadelphia: Chilton Book Co, 1973).

the largest predictor for what religious belief a person has is the beliefs of their parents. In other words, the main reason people believe what they do is because the people they are surrounded by have imparted the same beliefs. The fact that one learned something only from other humans is not necessarily problematic to me. The problem arises when those beliefs are maintained in spite of contrary evidence, through confirmation bias. *In the Rubble, I Stand* (Figure 23.) references the feeling of being surrounded by people all sharing a belief system that I am starting to question. How did we really arrive at these beliefs? I start to view some of the beliefs that I no longer hold as simply a human construct, as represented by the stacked clay I-beams. The base of the sculpture is created from slaked dry, broken beams. I am exploring how despite a belief system that falters, people keep reconstructing that same belief system. I am reminded of my young son. What beliefs will I impart to him that he will later question?

Figure 23. *In the Rubble, I Stand*, soda fired stoneware, 8 x 8 in.

The pair of sculptures in *Binary Thinking* (Figure 24.) has a twofold meaning. The first revisits my interest and inspiration from the vastness of space; the second addresses the way people sometimes see issues as only black or white with no middle ground. I consider how remote the possibility of two stars falling into synchronous orbit and becoming binary stars. Many people see unlikely things in our universe and point to that as evidence of a creator. Many others simply see a universe so expansive that even the unlikeliest things are still a statistical probability. These two opposing views remind me of how so often I feel caught between factions of opposing mindsets. I see a world where many people see things in only black and white, and yet I feel that most truth is in the gray nuance between. Both of the pieces in *Binary*

Thinking were given the same surface treatment of eroded red and orange underglazes, however, they went into two separate firings. The smaller one was fired in a reduction kiln, which left the brighter colors intact, whereas the large one was soda fired which dramatically changed the surface appearance. To me, this represents how people can have very similar attributes, they have access to the same information, and yet, as they go through differing life experiences, their world view can be completely different. The use of sanded slip, tediously dripped from a squeeze bottle simulates the process used in clay 3D printers, but with my own unsteady (by comparison) hand. The use of sand was intended to reflect on my childhood when I would use wet sand dripped slowly and methodically to form bizarre and elegantly dripped sand castles. This memory stands as a strong fixture of my childhood, and now as a father I consider my own son playing in the sand. We both are of similar genetic composition, we live in the same surroundings, but someday he will move out and live his own life. How will he be shaped? Will I become stagnant in my world view while he continues to grow and change? Will we grow apart as time marches on?

Figure 24. *Binary Thinking*, hand-extruded sanded stoneware with eroded underglaze, reduction fired (left) and soda fired (right), 1.5 x 1.5 & 4 x 4 in.

3.3 Transformative

The act of transformation implies that there may have been a beginning, and perhaps an end, with change happening along the way. My work in the *Transformative* series echoes the changes that I have been personally experiencing in my religious and philosophical thinking throughout the last decade of my life. Each of these works represents transformation in some way, whether through the process of creating the piece or in its concept. The first piece in this series represents a paradigm shift for me both in my journey of religious deconstruction and also in my artistic expressions in clay. *The Protest Reformation* (Figure 25.) began its life as a wheel-thrown pot that I created and allowed to dry. The act of dropping and breaking the work (Figure 12.) was symbolic of my letting go of my former system of fundamentalist beliefs. The shape of the pottery vessel is often compared to the human form (it has a foot, belly, shoulder, and neck). My interpretation of this piece is that the vessel destroyed represented a whole, complete version of my former self. The world was simpler when I was at ease in my theology. I was surrounded by people that felt and thought the same way as me. This comfort level was soon replaced by tension and cognitive dissonance when I began to deconstruct after being exposed to differing viewpoints and answers in science. What I saw though is beauty in that brokenness. I was moving closer towards truth and moving closer towards a version of myself that was honest, open, and vulnerable. The broken pieces were reassembled into the sphere, with enough information remaining to suggest the pottery form this once was. The bold coloration is intended to distance this piece from traditional pottery; I did not want this to look like it was made of glazed potsherds. Instead, the eroded surface treatment suggests something more foreign and different than what this may have been if it continued its life as a pot. The new form embraces

its history of brokenness, and accepts its flaws and incompleteness, but to me, this new form is much more interesting and beautiful than the pot that preceded it.

Figure 25. *The Protest Reformation*, oxidation fired stoneware with eroded underglaze, 9 x 9 in.

The Prodigal Sun (Figure 26.) represents one of the most significant moments in my personal deconstruction of religious faith. As a continuation of the themes presented in *The Protest Reformation* (Figure 25.), this new sculpture also deals with broken components coming together to create a new spherical form. For this one, however, I began by extruding clay units in the shape of the Christian cross, which has served as a most sacred symbol for the core teachings of Jesus in the New Testament. To me, the symbol of the cross meant to love one's neighbor as yourself; love for others is the most significant teaching of Christ. Yet, I observe an American Christian culture that embraces racism, hatred towards LGBT people, xenophobia, and militant

nationalism. I feel that a large percentage of Christian Evangelicals stand in strong support of policies and actions that go in direct contradiction to the teachings of Jesus, and yet they proudly wave about their religion in moral superiority to those that disagree with them. To me, the clay extrusion process represents that perversion of the beauty of Christianity; like the clay being forced through the narrow cross-shaped opening, people jam their own selfish ideology and hatred into a twisted form of Christianity. I feel so much anger and frustration at the hypocrisy demonstrated by self-proclaimed Christians, so I chose to intentionally let go of the cross, what I viewed as a distorted symbol now missing the core message of Christianity. I allowed the cross extrusions to dry, then thoughtfully considered the weight of this symbol as I held the mass of clay, and one by one, allowed each piece to drop to the concrete floor of my studio, shattering the clay into pieces. For the first time, I felt as if I had left the form of Christianity in which I felt surrounded by which left me feeling perplexed and alone, yet somehow liberated. Each fragment was carefully collected from my studio floor and meticulously reassembled into the sphere. The title is a reference to the biblical parable of the prodigal son, a boy who left his father and eventually returned (serving as a metaphor for the *lost* eventually returning to their faith in God). Was this me? Am I the prodigal son? Will I return to anything? The play on words in the title of the sculpture with the inclusion of the word *sun* is a reference to naturalism, a belief in only natural explanations for the laws and forces that govern our universe, as opposed to supernatural ones.

Figure 26. *The Prodigal Sun*, soda fired stoneware with eroded underglaze, 12 x 12 in.

Beneath a Surface Level Understanding (Figure 27.) is constructed of smooth slabs of clay following the contour of the spherical surface, with rectilinear slabs for the internal structure, radiating from the center point. The outer surface is a spartan white coating, with crisp incisions of circles and lines. One could imagine that at one point this may have been a solid white sphere that has since broken apart. Or perhaps it is the reverse, a once chaotic and broken form slowly forming together like tectonic plates forming the Earth's crust. The idea presented here is that the outer surface represents a measured, plotted, and graphed understanding of reality. The plane of the surface of a sphere is merely a curved two-dimensional plane. I am

expressing how a person might feel that they have life completely figured out, an answer for every mystery. They may feel comfortable in their certainty, and yet through some means, the surface level truth cracks open revealing a contrasting void and a three-dimensional structure supporting each plate. The true nature of reality is complicated, and science is always revealing new truths about the world. This sculpture represents the error of surface level thinking.

Figure 27. *Beneath a Surface Level Understanding*, reduction fired stoneware with slips, glaze, and iron-manganese stain, 18 x 18 in.

My Search for Truth (Figure 28.) is an installation of five 12" spheres placed in order from left to right. The furthest left is constructed of the same rectilinear slabs used in my earlier work, but upon closer inspection reveals a tiny, vibrant blue sphere nestled within the structure.

The next sphere to the right is a closer view of the same sphere, now encircled by larger, thicker slabs to reinforce the sense of zooming in. As the viewer continues to the right, each sphere offers a closer view of the blue sphere within, but as that blue sphere increases in clarity, it becomes cracked, worn, and broken. The final and fifth sphere is the entirety of that original tiny perfect blue sphere, now a broken assemblage of fragments. Yet, nestled deep within, is yet another tiny, perfect blue sphere. This installation is my way of unifying my earlier work within *Meta Spherical* with the newer approaches. The blue sphere represents absolute truth or God himself, and the supporting matrix structure represents the human concepts and constructions that we form in order to shape our own world view. Earlier in my life I had an idea of what I thought God was, and I spent a significant portion of my lifetime searching for him. I was taught as a child that if someone truly searched for God, they would find him, and I certainly believe that anything that is true will stand up to scrutiny. I spent more than a decade searching, and yet I felt as if every stone that I overturned made God seem less like the idea I once had. Instead, I found something more distant, and less real. *My Search for the Truth* is an honest reflection on how I feel about my search for God, and the perplexing disappointment in what I found. Yet that tiny blue sphere within that final broken blue sphere represents the underpinning thought that there may yet be more to this world than explained by science.

Figure 28. *My Search for Truth*, set of 5 12 inch spheres, soda fired stoneware with blue underglaze.

3.4 Solace

The *Solace* series can be seen as a sort of conclusion to the research of *Meta Spherical.* The flowing and merging triangular extrusions elegantly form a sphere that seems frozen in movement (Figure 29.). Rather than being cracked, broken, cut, or separated units of construction, each piece is blended into the next; this work is more about the resulting form than the pieces used to make it. This series represents a philosophical paradigm shift for me. For the first time, I let go of all of the supernatural ideas that had been part of my once fundamentalists religious view, and instead only chose to embrace what makes sense to me as I live and experience this natural world. This work seems to embody a sense of harmony where the *Constructive* and *Transformative* series tended to embody tension and change. This shift towards solace reflects the feeling I experienced with the loss of cognitive dissonance. For example, I once struggled with the notion of sickness and pain in the world; why would God allow little children to die of cancer, yet answer my prayers for finding my car keys? I could not imagine a situation where I would not trade in my keys to save a child's life. Yet when I accept that cancer is a natural byproduct of evolutionary biology, there is no meaning to it at all. Things just happen sometimes. To paraphrase Sagan's *A Pale Blue Dot,* the earth is merely a mote of dust suspended in a sunbeam. We are insignificant compared to the scale of the universe. To me, the significance is that there is less confusion about why things happen in the world when one abandons supernatural beliefs. Instead, I am simply in awe with how amazing, precious, and beautiful it is to exist as conscious beings. No matter what someone believes about a possible afterlife, or about God, or about science, this life is precious, painful, and beautiful. All we can do as humans is to show love and care for one another, and cherish every moment. In some ways, I have come

full circle to the most meaningful core of Christian teaching, to love your neighbor as yourself. That is what I feel must be done; we are all on this tiny planet in this short lifetime together. I feel a greater sense of peace and harmony in my life than I have in many years. The *Solace* series represents acceptance of all that life has to offer, and the sense of peace I now feel having left behind much of my confusion about why things happen in the world. The sculptures in this series have much less mass and a more open structure of negative space, which represents an openness to that which has yet to be explained or understood. The work represents my choice to no longer take a strong stance on supernatural thinking and instead an openness to how each person has a worldview shaped by their own lifetime of experiences. We may be different but there is potential beauty and value in all of us. Some people may have ideas that are much closer to absolute truth than others, and the journey for truth is worth pursuing, but work in *Solace* represents the peace that might only be felt in the conscious move away from cognitive dissonance and confirmation bias.

Figure 29. *Solace I*, soda fired stoneware, 8 x 8 in.

CHAPTER 4: EXHIBITION

The body of work created for *Meta Spherical* was exhibited at the Hodson Gallery at Hood College from July 27 – August 12, 2018 (Figures 30-34.). Work from the *Constructive*, *Transformative*, and *Solace* series were exhibited. The gallery is a long rectangular room with a vestibule entrance dividing the space into roughly square shaped left and right sections (when viewed from the doorway), with a very long display wall connecting the two spaces. The three series have been grouped together in the three spaces, with the *Constructive* series occupying the left area of the gallery, the *Transformative* along the long center wall, and the *Solace* series displayed in the right section of the space. As one enters the gallery from the main entrance vestibule, they are first greeted by a row of five plinths which displays the installation *My Search for Truth* (Figure 32.). The central placement of this sculptural installation visually unifies all three display areas within the gallery because the sculpture itself has a dominant sequence that can be read from left to right or right to left. Most of the sculptures are displayed simply on the white plinths, however there are some pieces that have been designed as wall-hangings (Figures 30 and 31.).

My goal is that an uninitiated viewer, when first entering the gallery, will feel a sense of wonder and mystery when viewing my sculptures. The intentionally abstract work does not provide a clear narrative to the viewer, but rather imparts feelings that may connect to the viewer. My hope is that the viewer first sees the objects as something new, something they have never seen before, that they will be compelled to peer closer at the work and view it from multiple angles in order to find out more about what they are seeing. If nothing more is experienced from the viewer than that sense of awe and mystery, then I have successfully imparted some of the earliest and most significant feelings that have led to my work in *Meta Spherical*, the feeling I get when viewing and contemplating the mysteries of the universe, the

feeling I get when seeing something strange and beautiful in the world. A deeper level of meaning, however, can be reached by the viewer by reading the titles of the work, many of which hint at my specific impetus for creating the piece. Some of the work provides a metaphor than can be more easily read by the viewer, such as *The Protest Reformation*, which can clearly be seen as a broken clay pot rearranged into a sphere, with the term reformation meaning to re-form. If the viewer successfully reads a deeper meaning from at least one of the sculptures, then there is the potential for them to see deeper meaning within the more enigmatic pieces as well.

Figure 30. *Meta Spherical* exhibition at Hood College's Hodson Gallery.

Figure 31. *Meta Spherical* exhibition at Hood College's Hodson Gallery.

Figure 32. *Meta Spherical* exhibition at Hood College's Hodson Gallery.

Figure 33. *Meta Spherical* exhibition at Hood College's Hodson Gallery.

Figure 34. *Meta Spherical* exhibition at Hood College's Hodson Gallery.

CHAPTER 5: CONTRIBUTIONS TO THE FIELD

Over the course of history, many artists have incorporated the use of the circle or sphere into their work, which is no surprise because circles and spheres have been seen as universal symbols for wholeness, completeness, or God. So, I have narrowed my comparison to contemporary artists working specifically with open, matrix-like ceramic structures. One such artist working with open matrix-like structures is artist Andy Ruble (Figure 35). He creates very carefully crafted ceramic sculptures reminiscent of things microscopic, or perhaps weathered bones or man-made structures. The precision of his clay structures is contrasted by his use of heavy ash wood fired surfaces. I am drawn to the rich, ancient, and mysterious qualities offered by his rough and corroded surfaces, combined with his use of open matrix-like forms. Ruble's sculptures do not suggest multiple smaller components used for construction, but rather seem as if they were cast or carved from some unknown solid material.

Figure 35. Ruble, Andy, *Torus*, 2016, Wood fired stoneware, 19 x 19 x 9 in.

Another contemporary artist working with open matrix-like structures is Tessa Eastman. In her sculpture, *Red Cloud* (Figure 36.) we see an orb like structure of clay coils, interconnected at approximately equal spacing. Her use of bold and bright glaze coloration, enhanced by the bubbling textured glaze surface, creates a compelling and mysterious object. Her work is inspired from microscopic elements of nature, or of clouds and other phenomena. In some of her other pieces, she combines her matrix structures with more solid objects providing contrasting positive space with the negative spaces of the open structures. Eastman's range of sculptures embodies strikingly colorful surfaces with a variety of textures, and remind me of microscopic bacterial or crystal structures, enlarged to a scale accessible to the viewer.

Figure 36. Eastman, Tessa, *Big Red Cloud*, 2017, Glazed Ceramic, 15 x 15 in.

Shiyuan Xu is another contemporary artist working with open matrices of interconnected clay. In her piece, *The Most Wondrous Tiny Things* (Figure 37.), she uses thinly pinched paperclay porcelain to form a very open lightweight structure, suspended by solidified dripping glaze. Xu's range of sculpture, typified by white porcelain, often contrasted with oozing glaze structures, reminds me of microscopic objects, which have somehow been plucked out of their environment, still dripping in the liquid in which they may have been suspended. I am compelled by the elevation of many of her sculptures on the dripped glaze structures, which embodies a sense of weightlessness to her forms.

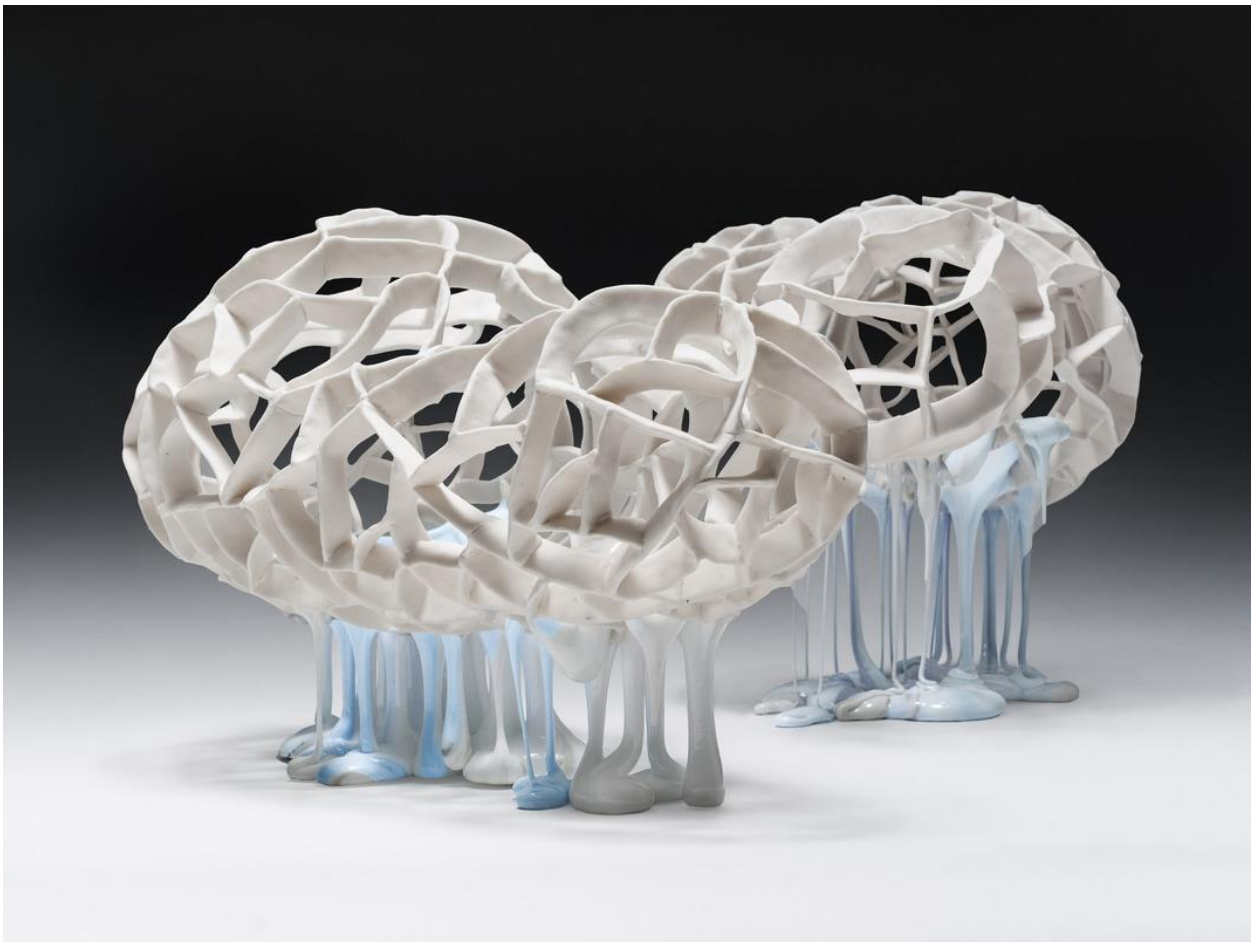


Figure 37. Xu, Shiyuan, *The Most Wondrous Tiny Things*, 2016, Porcelain Paperclay, 14 × 20 × 9 in. Photo Credit: Paul Hester.

My work in *Meta Spherical* combines some aspects of these contemporary artists' work. I am using some areas of brighter and bolder surface treatments, seen in Eastman's work, with the sense of deterioration and corrosion utilized in Ruble's sculptures. I also relate to Shiyuan Xu's interest in the wonder offered by scientific views of our universe, her work referencing the microscopic scale, my work the cosmic scale. What I bring to the contemporary field of sculptural ceramics is work that pulls together many current design and conceptual trends into a body of work that uniquely expresses my own experience of religious deconstruction and the search for truth.

The artwork created in the research for *Meta Spherical* provide two distinct contributions to the field, my technique of surface erosion on matrix-like ceramic sculpture combined with atmospheric firing, and the concept of the search for truth expressed within the context of religious deconstruction. There are other artists working in surface erosion of ceramics (Section 2.5), however, my use specifically of water erosion on a multilayered surface is unique, particularly when applied to the open, interconnected matrix-like structures of my work. The results achieved with water erosion alone, even in the oxidization fired work (which imparts less of a surface effect on the work from the firing), have a unique, slightly blended color separation compared to dry media erosion techniques such as sanding or scraping. When the water erosion surface treatment is applied to work which is then soda fired, I achieve something even more unique. For example, in *Crystallization of Unknowing* (Figure 19.) some of the colors almost appear like flashing one might see on clay or slip, however, the colors are a little more vibrant and a wider range of hues, including shades of blue.

My conceptual approach of exploring the search for truth, specifically within the context of religious deconstruction, is uniquely paired with the ceramic sculptures presented in *Meta Spherical*. In my research, I have not found other artists working on this specific content within the field of contemporary ceramics. The context of religious deconstruction and deconversion is especially relevant in current culture. The millennial generation has a significantly higher rate of non-affiliation with religion compared to previous generations[26]. It stands to reason that there are more young people grappling with their own search for truth outside of the form of belief in which they may have grown up. This means they are not retaining their beliefs from their

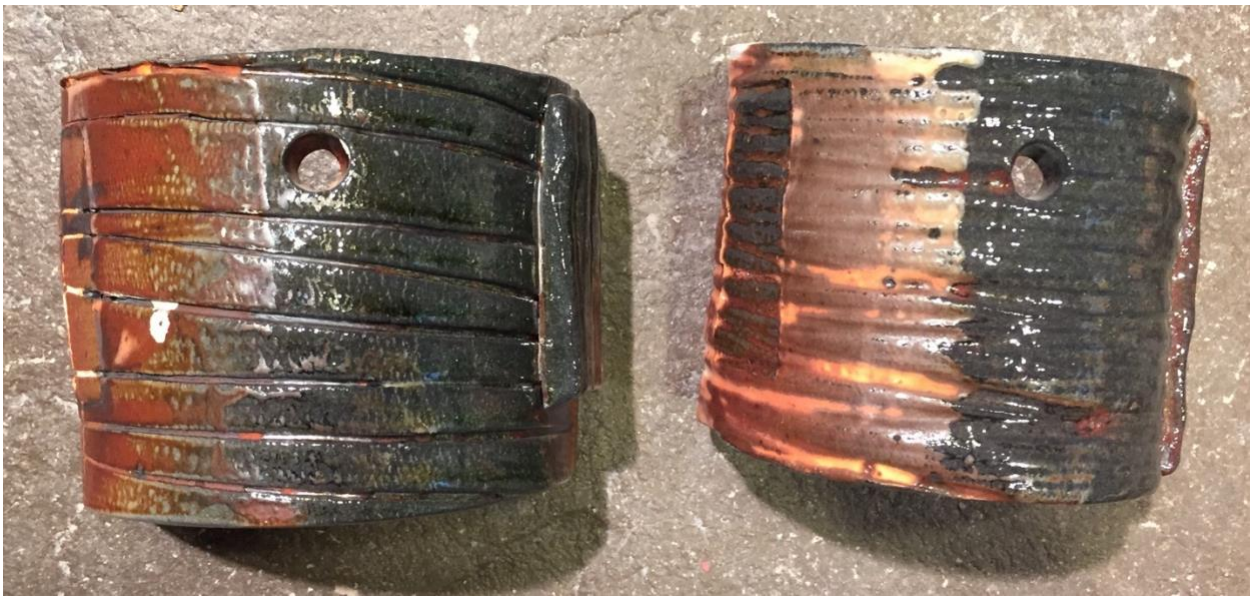
[26] Pond, Allison, Gregory Smith, and Scott Clement "Religion Among the Millennials," Pew Research Center's Religion & Public Life Project (blog), February 17, 2010, http://www.pewforum.org/2010/02/17/religion-among-the-millennials/.

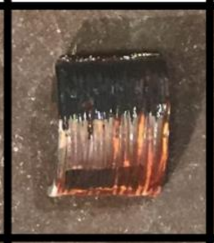
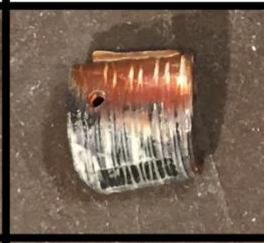
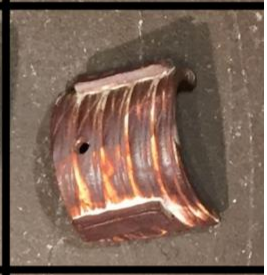
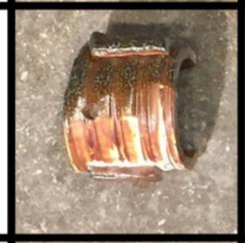
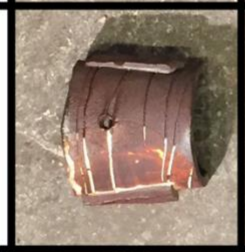
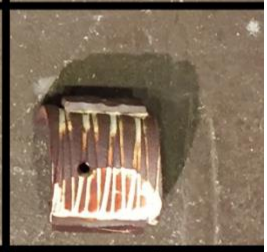
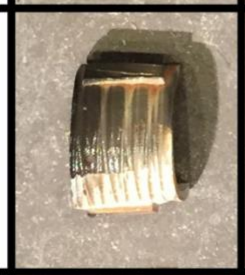
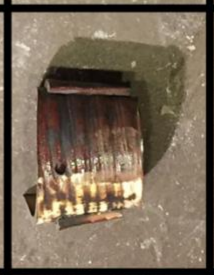
parents' generation, but may be searching for their own truth. *Meta Spherical* specifically explores this search for truth, and has the potential to resonate with a young and contemporary audience. The research success in *Meta Spherical* can be seen in the strong and specific connections made between the physical forms of the sculpture and the symbolism.

Appendix. CLAY AND SURFACE TESTS

Six clay bodies were selected for testing in a cone 10 atmospheric soda kiln. Each "test tile" is a curved and textured clay slab, thinly coated in "anti-flashing slip" (50% Alumina Hydrate, 50% EPK) with an added rectangle slab on each side in uncoated clay. All tiles in this test have been created according to the above specifications, then bisque fired. Each clay body then is treated in four variations: no surface treatment, iron oxide stain, copper carbonate stain, and an additional thing wash of anti-flashing slip. The oxide stains were simply a mixture of oxide and water. All tiles were included in the same firing, with some variation in results according to their placement in the kiln.

Standard 508 Clay detail view (iron oxide stain left, copper carbonate stain right):



	No Surface Treatment	Iron Oxide Stain	Copper Carbonate Stain	Anti-Flashing Slip Wash
Standard 508 Woodfire				
Standard 380 Outdoor Sculpture				
Standard 470 Woodfire				
Standard 108 Red Clay				
Standard 437 Troy Porcelain				
Standard 621 Troy Woodfire				

BIBLIOGRAPHY

Beebe, James. "Logical Problem of Evil," Internet Encyclopedia of Philosophy. Accessed July 3, 2018. https://www.iep.utm.edu/evil-log/.

Cooper, J. C. *An Illustrated Encyclopaedia of Traditional Symbols*. London: Thames and Hudson, 1992.

Hawking, Stephen. *The Illustrated A Brief History of Time / The Universe in a Nutshell - Two Books in One*. New York: Bantam Books, 2007.

"Highwater Clays: Red Stone (C3-6)." Accessed July 4, 2018. https://www.highwaterclays.com/index.cfm/product/249/red-stone-c3-6.cfm.

"I_J_Abrasive-Media-Guide.pdf." Accessed July 5, 2018. https://ibixusa.com/pdf/Training/I_J_Abrasive-Media-Guide.pdf.

Latka, Tom, and Jean Latka. *Ceramic Extruding: Inspiration & Technique*. Iola, WI: Krause Publications, 2001.

Lou, Nils. *The Art of Firing*. London; Oviedo, FL: A & C Black ; Gentle Breeze, 2003.

Martin, Andrew. *The Essential Guide to Mold Making & Slip Casting*. New York: Lark Crafts, 2007.

McHargue, Mike, and Rob Bell. *Finding God in the Waves: How I Lost My Faith and Found It Again Through Science*. New York: Convergent Books, 2016.

Nichols, Gail. *Soda, Clay and Fire*. Westerville, OH: American Ceramic Society, 2006.

Pond, Allison, Gregory Smith, and Scott Clement, "Religion Among the Millennials," Pew Research Center's Religion & Public Life Project (blog), February 17, 2010. http://www.pewforum.org/2010/02/17/religion-among-the-millennials/.

Rhodes, Daniel. *Clay and Glazes for the Potter*. Rev. ed. Philadelphia: Chilton Book Co, 1973.

Sagan, Carl. *Pale Blue Dot: A Vision of the Human Future in Space*. Reprint edition. New York: Ballantine Books, 1997.

Seo, Audrey Yoshiko, and John Daido Loori. *Ensō: Zen Circles of Enlightenment*. 1st ed. Boston: Weatherhill, 2007.

Standen, Kathleen. *Additions to Clay Bodies*. Westerville, OH: American Ceramic Society, 2013.

Tudball, Ruthanne. *Soda Glazing*. London; Philadelphia: University of Pennsylvania Press, 1995.

Tyson, Neil DeGrasse, and Donald Goldsmith. *Origins: Fourteen Billion Years of Cosmic Evolution*. New York: W. W. Norton & Company, 2004.