

**APPLICATION FORM  
UNDERGRADUATE RESEARCH GRANT**

**Project Title: Gibbous Fountain**

**Student Investigator: Jessica L. Yager**

**Investigator's Current Address: 9 Green Street, Apartment 2, Bellows Falls, VT 05101**

**Faculty Sponsor: Lynn Richardson**

**Faculty Mailstop and Phone: M-2405  
358-2139**

**Abstract:** 250 words or less, singled spaced. (Project Abstracts of awarded proposals will be published on the OSPR website)

After my mother was diagnosed with Breast Cancer last summer, I decided to dedicate my senior work to exploring and sharing our journey as she pursues aggressive treatment. The size and subject that I am working with in this fountain calls it into a public space. I am excited to display this work in the Student Exhibition at the Thorne-Sagendorph Gallery and look forward to the possibility of installing it at future sites such as a cancer treatment center or hospital where it could touch the lives of others affected by breast cancer.

My design for this fountain began with the image of a woman, post mastectomy, standing bathed in water and light, with a host of faces of those who have walked this path before and those who walk beside in support emerging behind her. She stands with her eyes closed, face turned toward the light and water coming from above; her arms extended in a pose that sits between worship, acceptance, strength and peace. She stands in a basin shaped like a gibbous moon, filled with stones that have been tumbled by the ocean. Underwater lights play across the stones and provide an ethereal feeling to the pool, as if the light is indeed cascading with the water into the basin. From floor to the top of the façade the fountain will stand about nine feet tall; the basin measures 6-6.5' in diameter.

**I. Project Narrative:** (Project narrative should include the following headings, and in total should be no more than 5 pages in length. You may allocate the 5 pages in whatever way makes sense among the headings for your project.)

***Description of Proposed Project:***

I propose to build a fountain, designed to be completed in time to be installed in the Student Exhibition at the Thorne-Sagendorph Gallery. The design of the fountain includes a life cast of a one-breasted woman (post-mastectomy) with a background of many faces representing the other women and men who have battled breast cancer and the people in her life standing in support of her as she fights the disease. The fountain will stand approximately nine feet tall, and the basin will be between 6-6.5' in diameter. The primary materials I will be using are Forton MG (and ultra strong modified gypsum plaster compound), bronze powder (bonds with the Forton MG to create cold-cast bronze sculpture), wood, and electrical components for lighting and plumbing. Cold-casting of bronze is a process which replaces the technique of casting molten metal into a mold with using a bonding compound such as Forton MG saturated with bronze powder. The bonding compound is mixed with the pure metal powder and brushed into the mold in thin layers. After the cast has set and the mold is removed, the surface is buffed with an abrasive pad to remove the micro-thin layer of the bonding agent from the metal. This reveals a solid metal surface that accepts patination in exactly the same manner as traditional hot-cast metal.

***Project Goals & Objectives:***

My goal is to produce a large-scale sculptural work of a professional quality. I aim to produce a successful life-sized, cold-cast bronze figure as the central feature of a working fountain. I hope to translate my vision for this piece to a reality that is culturally and personally relevant. In the process of producing this piece I will learn multiple new processes including: life casting, cold-casting, fountain and lighting engineering skills, and the necessary considerations for working on a large scale sculptural installation piece. I propose to complete the project in time for it to be installed in the Thorne-Sagendorph Art Gallery for the *Emerging Art: Annual Keene State Student Art Exhibition*, which opens April 16, 2010.

***Background/Rationale:***

When my mother was diagnosed with Breast Cancer I decided that the theme for my senior show would be sharing this journey from diagnosis through treatment. One in eight women will be diagnosed with this disease in her lifetime (breastcancer.org), and nearly everyone knows someone affected by it. Before my mother's diagnosis, I thought that the increasing presence of Pink Ribbon items in our world was the same as making Breast Cancer visible. Today you can find everything from mushrooms and yogurt at the grocery store to bumper stickers and NFL gear branded with Pink Ribbons ostensibly denoting some corporate contribution to breast cancer research or awareness. Barbara Brenner, executive director of Breast Cancer Action in San Francisco writes, "There is a value to awareness, but awareness of what, and to what end?" in her frustration with financial contributions to "awareness" campaigns over research into finding cure and prevention. This "Pinking" provides a mask to cover the hard truth of the fight with something more palatable. I want to use my art to make the actual experience of fighting cancer more visible. I aim to present a collection of honest, emotional work about Breast Cancer to a world that would often rather hide from imperfection, weakness and illness. As my mother has undergone multiple surgeries, two rounds of chemotherapy and aggressive radiation treatments what I have seen is anything but weakness. I am inspired by her

grace and strength as she faces this challenging course of treatments. The design for this fountain is meant to both honor that strength and centeredness, and to celebrate the unconventional beauty of a post-mastectomy, chemo-bald woman. The background of the fountain is comprised of the many faces of her supporters and those who have made this journey before.

I envision this fountain installed in a courtyard or lobby at a cancer treatment center or hospital. This fountain is meant to be a quiet spring of strength reminding the women and men facing this disease that they are not alone. Over the past semester I have been sending images of my current work to my mother, which she brings with her each week when she receives her chemo. The response she has received from the staff has been overwhelmingly positive. While there is a vast amount of funding available for Breast Cancer research, there is a gap in the area of funding for works of public art relating to the disease, with even less available for student projects.

In planning the execution of this project, cost of materials, studio requirements (tools, quality of ventilation, safety, etc), and desired aesthetic each weighed in my considerations. After extensive research, I concluded that the best medium for the figure is cold-cast bronze, which yields a surface and heft like that of a classic foundry poured cast bronze. The materials for this method were most affordable, are safe to use in the facilities available to me, and I find the juxtaposition of the elements of classical design with the unconventional beauty I am celebrating with this piece to be particularly compelling. There is a long and full history of nude forms being used in art. In such quintessential works as Michelangelo's David and the Venus de Milo we are presented with idealized versions of the human form. They are imbued with divine properties through this perfection that exceeds human possibility. The figure in my design juxtaposes this historical use of the ideal human form with a scarred and hairless woman. I celebrate the inner strength of this survivor by exposing her imperfections, rather than rendering an idealized form.

**Methodology:** My approach to this work is best laid out in a step-by-step outline that will correspond with the information included in the project timeline section.

**Step I: Mold making—central figure**

- A. Using LifeRite skin-safe silicone mold making system I will create a lifecast. (The head and upper torso will be casts of my mother, the rest of the body will be casts of my body)
- B. While the silicone is curing I will embed cotton fibers in the exterior of the silicone mold. These fibers help the silicone bond with the mother-mold. The mother-mold will be made fiberglass medical-grade casting tape and serves to support the shape and form of the otherwise too-flexible silicone mold.
- C. After the silicone has cured (about eight minutes after application) the mother mold will be applied to the front half of the mold.
- D. After the front half of the mother mold has set, a pair of surgical scissors will be used to carefully cut the mold along each side, and the front half will be carefully removed.
- E. With the front half removed, the mother mold will be applied to the second half. When this mother mold has set, the back half will be removed and the two halves reunited to make sure that they still fit perfectly together.

**Step II: Casting**

- A. Each half of the cast will be prepared to accept the outermost layers of casting
- B. Mold will be "salted" with bronze powder to help ensure the exterior will be 100% saturation
- C. Forton MG compound will be prepared, mixing appropriate parts according to instructions for cold-casting, and applied to interior of mold.

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- D. Several layers of Forton MG will be painted into interior as per directions, by the fourth layer the addition of fiberglass will be made to increase strength of final product without risking fibers breaking through to the surface.
- E. When exterior layers in both halves have cured, edges will be prepared and front and back castings will be mated. Molds will be secured to ensure complete seal.
- F. Plaster compound will be mixed with Styrofoam pellets to decrease density and poured into center of mated molds, forming the core and permanently bonding the halves back into a single form. At this stage, installation hardware will be inserted into the bottom of the casting to later anchor figure in the basin of the fountain.
- G. After casting has cured, molds will be removed
- H. The revealed cold-cast bronze surface will be buffed and patina applied.
- I. Top coat seal applied to surface to protect patina

### **Step III: Background Faces**

- A. Using skin safe moulage re-meltable gelatin based mold making material, with plaster bandage mother-molds, cast the faces of 7-10 faces
- B. Using Posmoulage wax based casting medium cast positives of each moulage mold before shrinking or distortion occurs.
- C. Using brush-on silicone mold with plaster of paris mother mold, create permanent copies of moulage molds.
- D. Melt down moulage and posmoulage to reuse for subsequent faces.
- E. Using Forton MG plaster to cast multiple copies of each of the faces, embed hardware in back of each face for mounting to background wall.

### **Step IV: Framing and Construction of Background and Basin**

- A. Measure and cut all materials to build frame for background and façade
- B. Construct frame and façade
- C. Treat all wood surfaces with stain and topcoat, all detail work on façade
- D. Use Forton MG and fiberglass to construct basin
- E. Attach basin to frame and construct exterior of basin
- F. Prepare background to receive faces
- G. Using embedded hardware, attach faces evenly distributed across background at varying depths to maximize the texture for water to play on
- H. Using Forton MG fill space between faces and sculpt with textured surface.
- I. Seal Background with appropriate topcoat
- J. Install fountain pump in basin and plumbing in background
- K. Install lighting fixtures for spotlights on figure and background
- L. Install underwater lighting in basin

### **Step V: Final Assembly/Installation**

- A. Bring all components to gallery for set up
- B. Using installation hardware, attach figure to basin.
- C. Systems check (lights, pump)
- D. Fill basin with water to appropriate level

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### Project Timeline:

	<b>2/1</b>	<b>2/2/</b>	<b>2/3</b>	<b>2/4/</b>	<b>2/5</b>	<b>2/6</b>
	Mold and Cast Background Faces Order Supplies for figure mold and mother mold,	Mold and Cast Background Faces Order supplies for figure casting	Mold and Cast Background Faces	Mold and Cast Background Faces	Mold and Cast Background Faces	Mold and Cast Background Faces Make Figure mold with mother mold
<b>2/7</b>	<b>2/8</b>	<b>2/9</b>	<b>2/10</b>	<b>2/11</b>	<b>2/12</b>	<b>2/13</b>
Mold and Cast Background Faces Make Figure mold with mother mold	Mold and Cast Background Faces <b>GRANT DUE</b>	Mold and Cast Background Faces Follow Step II to: Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure
<b>2/14</b>	<b>2/15</b>	<b>2/16</b>	<b>2/17</b>	<b>2/18</b>	<b>2/19</b>	<b>2/20</b>
Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Cast Figure	Mold and Cast Background Faces Troubleshooting
<b>2/21</b>	<b>2/22</b>	<b>2/23</b>	<b>2/24</b>	<b>2/25</b>	<b>2/26</b>	<b>2/27</b>
Troubleshooting	Troubleshooting Get materials for Basin and background	Troubleshooting Framing and Constructing façade and background	Remove Mold Framing and Constructing façade and background	Polish and Patina Bronze Framing and Constructing façade and background	Polish and Patina Bronze Framing and Constructing façade and background	Polish and Patina Bronze Framing and Constructing façade and background
<b>2/28</b>	<b>3/1</b>	<b>3/2</b>	<b>3/3</b>	<b>3/4</b>	<b>3/5</b>	<b>3/6</b>
Polish and Patina Bronze Sand, stain and finish Wood elements of facade	Polish and Patina Bronze Sand, stain and finish Wood elements of facade	Polish and Patina Bronze Sand, stain and finish Wood elements of facade	Polish and Patina Bronze Top coat to protect patina Sand, stain and finish Wood elements of facade	Top coat to protect patina Sand, stain and finish Wood elements of facade	Top coat to protect patina Sand, stain and finish Wood elements of facade	Top coat to protect patina Sand, stain and finish Wood elements of facade
<b>3/7</b>	<b>3/8</b>	<b>3/9</b>	<b>3/10</b>	<b>3/11</b>	<b>3/12</b>	<b>3/13</b>
Using embedded hardware attach faces to background	Using embedded hardware attach faces to background	Using embedded hardware attach faces to background	Using Forton MG sculpt areas between faces in background	Using Forton MG sculpt areas between faces in background	Using Forton MG sculpt areas between faces in background	Using Forton MG sculpt areas between faces in background
<b>3/14</b>	<b>3/15</b>	<b>3/16</b>	<b>3/17</b>	<b>3/18</b>	<b>3/19</b>	<b>3/20</b>
Build and seal basin, test for stability and leaks	Build and seal basin, test for stability and leaks Seal background	Build and seal basin, test for stability and leaks Seal background	Build and seal basin, test for stability and leaks	attach basin to background and facade	attach basin to background and facade troubleshoot	plumbing and electrical work in basin and background troubleshoot
<b>3/21</b>	<b>3/22</b>	<b>3/23</b>	<b>3/24</b>	<b>3/25</b>	<b>3/26</b>	<b>3/27</b>
plumbing and electrical work in basin and background	plumbing and electrical work in basin and background	plumbing and electrical work in basin and background	plumbing and electrical work in basin and background	plumbing and electrical work in basin and background	plumbing and electrical work in basin and background	plumbing and electrical work in basin and background
<b>3/28</b>	<b>3/29</b>	<b>3/30</b>	<b>3/31</b>	<b>4/1</b>	<b>4/2</b>	<b>4/3</b>
Troubleshooting	Troubleshooting	Troubleshooting Gallery installation	Troubleshooting Gallery installation	Troubleshooting Gallery installation	Troubleshooting Gallery installation	Troubleshooting Gallery installation

**II. Annotated Bibliography:**

"Breast Cancer Risk and Risk Factors"(11/25/08). Retrieved from [http://www.breastcancer.org/symptoms/understand\\_bc/risk/](http://www.breastcancer.org/symptoms/understand_bc/risk/)

This site provides very accessible, up-to-date information about breast cancer. “Our mission is to help women and their loved ones make sense of the complex medical and personal information about breast cancer, so they can make the best decisions for their lives.” The information here is compiled by a professional advisory board and reviewed by a board of directors.

*How to Make Cold Cast Bronze Sculptures and Other Bonded Casts* (n.d.) Retrieved from [http://www.artmolds.com/pdf/cold\\_casting.pdf](http://www.artmolds.com/pdf/cold_casting.pdf)

This technical bulletin is provided by the supplier I purchased my mold making and casting materials from. It provides an overview of methods, mixing ratios, and materials necessary for creating successful cold-cast bronze.

**III. Project Budget:** I am including the over all project budget, which is greater than the maximum grant amount. I have shaded the portions I am not requesting funding for with this grant and included both full project totals and requested total amount. I have been raising funds from small private donors to cover the shaded portions.

Budget Category	Item / Description	Cost	Source	Shipping
Supplies:				
Mold Making:	Moulage - 2 lb	\$13.99	dickblick.com	\$4.00
	Posmoulage - 1 lb	\$7.59	dickblick.com	accounted for
	Moulage Hardener - 4 oz	\$1.79	dickblick.com	accounted for
	Algislo (mold softener / retarder) 16 oz	\$20.59	dickblick.com	accounted for
	Moldez release 8oz	\$13.69	dickblick.com	accounted for
	LifeRite Silicone mold kit - 1 gallon	\$377.99	dickblick.com	accounted for
	SmoothOn rubber/rebound 25 - 1 pint kit	\$28.67	dickblick.com	accounted for
	roll soft cotton fibers - 1 lb	\$9.95	artmolds.com	accounted for
	Plaster bandages - package of 12	\$13.99	orthotape.com	accounted for
	Orthotape fiberglass bandages - 20 rolls @ 4"x 4yd	\$109.98	orthotape.com	\$27.25
Casting:	Bronze Powder - 20 lb	\$259.95	artmolds.com	accounted for
	Forton MG Sculptor kit (2)	\$351.90	artmolds.com	\$80.95
	Chopped Fiberglass - 10 lb	\$74.95	artmolds.com	accounted for
	FGR-95 plaster		studio supply	
Structural and hardware:	2x4s- 10 @ 12'	\$40.90	home depot	local
	2x10 hardwood for façade - 8 @ 8'	\$47.12	home depot	local
	quality plywood for sides - 3/4" 4'x8'	\$39.94	home depot	local

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	5lb box 2" 6d nails	\$13.93	home depot	local
	11b box 8x1-5/8" Deckmate screws	\$8.69	home depot	local
	stainable wood glue - 8oz bottle	\$3.97	home depot	local
	wood stain - 1 gallon	\$32.95	home depot	local
	waterproofing seal for wood - 1 gallon	\$13.97	home depot	local
	joist hangers for 2x4s - 20	\$13.60	home depot	local
	reinforcing angle, 7" - 12	\$33.12	home depot	local
	assembly hardware - steel 3/4" bolts/nuts/washers (20 each)	\$52.20	home depot	local
	TP35 tie plate - 8	\$6.32	home depot	local
<b>Basin and fountain:</b>	Kiddie pool for casting basin	\$25.00		
	fountain pump - stainless steel cal pump	\$99.00	pondliner.com	\$13.00
	pipes for fountain ~ 15'		plumbing supply	local
	lighting fixture for figure spotlight	\$17.99	Oznum.com	\$4.20
	LED waterproof strip for basin	\$172.00	Environmentallights.com	\$9.95
	control panel in lockable access box	\$48.97	Home depot	local
	lighting fixture for background lighting	\$71.96	Oznum.com	Accounted for
Travel:	none	\$0.00		
Other:	none	\$0.00		
<b>Subtotal:</b>		\$2,151.86		\$139.35
<b>Requested Grant Funding</b>		\$741.63		
		<b>ProjectGrand Total</b>		<b>\$2,291.21</b>

**IV. Project Budget Justification:** Provide a detailed description and justification of each expense noted in your Project Budget. (No more than 2 pages in length. Supporting documentation may be provided, not included in the 2-page maximum)

<b>Supplies</b>	<b>Justification</b>
2x4s- 10 @ 12'	I will use 2x4s to frame the support structure for the background and form the supports behind the façade of the fountain. Due to the weight of the plaster used to create the faces in the background, these supports will be spaced at 10-12" apart.
2x10 hardwood for façade - 8 @ 8'	I will use this large dimension hardwood to frame the front of the fountain. Once stained and sealed wood provides a luminous and organic element to compliment the use of water in my design.
quality plywood for sides - 3/4" 4'x8'	These wooden panels will make up the sides of the fountain. These walls will mask the plumbing and electrical components that drive the pump and lights. Also one of these walls will contain the access panel for controls of these elements. Once stained and sealed wood provides a luminous and organic element to compliment the use of water in my design.
5lb box 2" 6d nails	I will use this hardware to assemble the framing for the background. These nails can only be used in dry areas of the fountain construction.
11b box 8x1-5/8" Deckmate screws	I will use these screws in portions of construction that will be regularly exposed to water. They have a lifetime warranty for water exposure and will resist rust, which will prevent streaking and staining on the façade and in the basin.
stainable wood glue - 8oz bottle	I will use this in conjunction with nails in constructing wood portions of the façade to add strength.
wood stain - 1 gallon	I will use this to achieve the desired even, warm tones of wood on all exposed

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	surfaces of the wooden elements of the façade.
waterproofing seal for wood - 1 gallon	Due to the level of moisture exposure the wood will sustain by being in close proximity with the water elements of the fountain, this is especially important to the longevity of the façade.
joist hangers for 2x4s - 20	I will use these stainless steel metal braces to secure the 2x4 structural supports of the background.
reinforcing angle, 7" - 12	I will use these structural braces to join the 2x10 elements to the frame.
assembly hardware - steel 3/4" bolts/nuts/washers (20 each)	This hardware will be used to attach major components of the fountain together to enable assembly and disassembly of the fountain for transport and installation.
TP35 tie plate - 8	This structural support will be used to join wood elements and provide additional stability and strength to construction. It is especially important to brace areas likely to warp due to humidity exposure.
Kiddie pool for casting basin	I will use a kiddie pool of appropriate dimensions as the base to cast my basin in Forton MG plaster with fiberglass reinforcements. Using an existing structure will help to ensure that my basin maintains a regular and even shape.
fountain pump - stainless steel cal pump	I chose this pump due to it's price, and combination of energy efficiency and ability to pump 215-262 gallons per hour at an elevation of 9'.
lighting fixture for figure spotlight	After extensive research I found waterproof, high efficiency, low cost lighting fixtures that I can use to illuminate the figure. By lighting the figure from above I draw on spiritual symbolism of light, whether the viewer sees it as sunlight, god, of the light of the human spirit. Using a spotlight creates the theater for this figure on the stage of the fountain, where without it would stand recessed in shadow beneath the structure required for the plumbing.
LED waterproof strip for basin	This fully submersible light strip will cast a warm glow into the basin, coming from all directions at once, fulfilling the illusion of water and light flowing together in this fountain. Without it, the basin filled with stones would feel much heavier and darker.
control panel in lockable access box	The electronic elements of the fountain will be contained in this lockable box, allowing for the unit to function without possibility of disruption. This feature is necessary for safety as well as convenience.
lighting fixtures for background lighting	I will use a collection of the same size lights as used for the figure spotlight to illuminate the background. As these lights will shine less directly and from a greater distance than the spotlight they will not overpower the light on the figure. Lighting the faces emerging from the background is necessary to prevent them from being lost in shadow and water. This design creates a light well, rather than a dark cave, for the figure to emerge from.

**Does your project include the use of human subjects for research? no**

**Does your project include the use of other vertebrate animals? no**

**Submit all proposal materials electronically to Susan Ericson-West,  
Grants Administrator, Office of Sponsored Projects and Research  
[swest@keene.edu](mailto:swest@keene.edu).**

**Proposals must be submitted by 5:00 pm on the submission deadline date.**