

Featured Artist: Julian Voss-Andreae

Quantum Sculpture: Art Inspired by the Deeper Nature of Reality

Part 1 of 2

After receiving a physics degree in 2000 from the Free University Berlin and the University of Vienna, I moved to the U.S. and studied fine art. Science has inspired my work since my days as an art student when I began to create sculptures based on the form and function of proteins, the molecular building blocks of life. Throughout my art studies I also retained a strong interest in the field that had most fascinated me as a scientist: quantum physics and its philosophical implications. Quantum physics is the scientific foundation of practically everything we encounter in the world, ranging from virtually every aspect of current high technology to the miracle of life itself. Despite its overwhelming importance and its fundamental status in science, quantum theory remains philosophically extraordinarily problematic.

On Visualizing Quantum Physics

With our intuitions schooled within the paradigm of classical physics, we tend to assume that reality has definite properties, regardless of whether or not there is anyone around to observe them. This view, called “objective realism,” turns out to be incompatible with quantum theory. For example, there is no accurate space-time representation of, say, an electron: It is neither a particle nor a wave nor any other “thing.” So, when attempting to visualize concepts from quantum physics, there is a danger in presenting artificially concrete representations without making sure they are correctly understood as only a facet of something more complex or as something altogether different. Consequently, it seems impossible to assign a “quantum object” any objective existence at all. And by extension, the same is true for everything material we encounter in this world.

There is always a danger of taking any image or model too literally. With that caution, I believe that art in general, especially once we dispense with the requirement that it visually represent reality accurately, is uniquely capable of instilling an intuition for the deeper aspects of reality that are

hidden to the naked eye. The ability of art to transcend the confines of logic and literal representation, and to offer glimpses of something beyond, can help us open up to a deeper understanding of the world.

First Sculptures

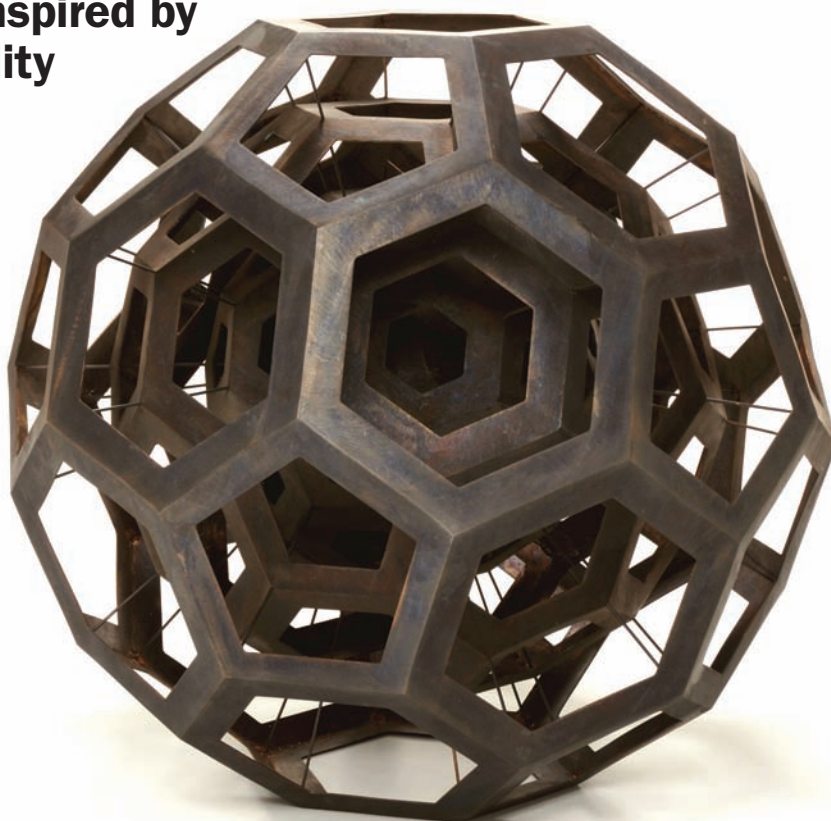
For my graduate research in Anton Zeilinger’s experimental physics group in Vienna, I participated in an experiment that successfully demonstrated quantum behavior for what at that time were the by far heaviest particles ever to reveal their quantum nature in a double-slit experiment. The particles probed were C₆₀ buckminsterfullerenes. Affectionately called buckyballs, these unusual molecules consist of 60 carbon atoms located at the vertices of a truncated icosahedron, the classic soccer ball. In 1999 we recorded the first interference pattern, the telltale sign for quantum behavior. The only way to explain the experimental results in terms of classical physics is to conclude that a single buckyball (or,

more accurately, the entity that is later detected as a single buckyball) goes through two openings at once—two openings that are a hundred times farther apart than the diameter of one buckyball.

Buckyball Sculptures (2004–2007)

Inspired by Leonardo da Vinci’s illustration of a truncated icosahedron for a Renaissance mathematics book, I created my first buckyball sculpture in 2004. I noticed that, if one cuts out the face of a buckyball, the cut-outs provide the exact amount of material needed to provide another, smaller buckyball. After cutting openings into the smaller buckyball’s faces, the same is true again for the next buckyball. Taking advantage of this reiterative procedure, I fabricated a succession of four buckyballs from bronze sheet. I placed the buckyballs inside each other and attached them in place by running thin rods radially through the 60 vertices. It is appealing to me that

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Pacific Northwest SCULPTORS

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www.pnwsculptors.org

The Pacific Northwest Sculptors Newsletter is a bimonthly publication of the Pacific Northwest Sculptors, a nonprofit organization dedicated to serving the public through educational programs and sculpture exhibitions. We are a dynamic, inclusive community of artists who inspire and support each other's growth with ideas, skills, and knowledge.

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Send to: lm1ustberg@gmail.com

Deadline for the August/Sept issue: July 8
Join or renew your membership at

www.pnwsculptors.org/membership.htm



Scan with your
smartphone for the
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President's Message

By Carole Murphy, President



Hello everyone,

These are exciting times!
Each year PNWS gets better and better. The level of excellence around everything we do continues to rise.

The biggest happening in PNWS this year is the upcoming show at the Allison Inn and Spa. This is Oregon's only 5-star hotel, and the rates and clientele reflect that. The gorgeous grounds cover 35 acres. Both the Allison and Art Elements Gallery in Newberg are very excited about the direction we are heading with the show, so much so, that they are putting in permanent platforms to display our sculptures on the grounds year round!

Because of Wendy Dunder's dedicated time and energy, the show has grown from a small idea into a major event that has so much potential for PNWS and for our individual members. Not only are we going to have a three-day indoor show featuring 50 sculptures from our members, but we are also going to have about 24 outdoor sculptures that will be on display year round. This show is exclusive to PNWS.

"The Allison Inn and Spa Presents the Pacific Northwest Sculptors Annual Exhibition" – what a great name! And to help with sales, Art Elements Gallery is going to train sales people to market our art for us! The best part is that we get to do it year after year, so start creating now for next year's event!

The April member's meeting was held at my

Upcoming Meetings

All meetings are *POTLUCK*. If you can't bring food or beverage, come anyway. Portfolios and work-in-progress are always welcome!

June Meeting - Potluck - BYOB

Speaker: Deedra Rasmussen

Social & Online Marketing

Wednesday, June 12, 7 pm

Hosted by Laurie Vail

4912 SE Ash St., Portland 97215

(503) 830-0149 www.laurievail.com

July Meeting - Potluck - BYOB

Demo: Richman Siansimbi - Engineer

Handheld 3D Digital Scanner Enlarging

Wednesday, July 17, 7 pm

Hosted by Todd Rau

14470 Leland Rd., Oregon City 97045

(503) 632-7062

August Meeting - BBQ by Leland - BYOB

Saturday, August 10, 5 pm - 7 pm

Hosted by Leland Waltuck

at The Steel Yard

6880 NE Columbia Blvd., Portland 97218

(503) 282-9273

studio on SE Stark. It was delightful that so many of you could make it. During the gathering, we talked about how we all enjoy the camaraderie of the meetings. The question came up: Why don't we consider having a meeting for our patrons and others who might be interested in our art? Most thought this would be a good idea to pursue, so we are looking into that possibility. Perhaps we'll rent a place, cater the event, and invite all those art curators, architects, and gallery owners. I'll keep you posted as the idea develops.

Your PNWS Board of Directors will have their annual retreat later this year. Our lives are so busy, including all the things we do for PNWS, that the one-day retreat won't happen until the end of summer or early fall. We are still working on the date.

See you at the meetings!

Your president,
Carole

CaroleMurphy.com

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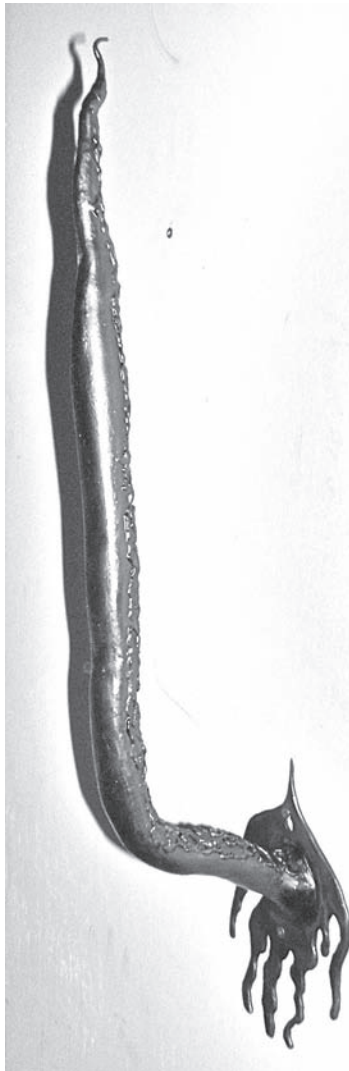
Gonzo's Lovecraft Inspiration

Writing between 1917 and 1935, the American author H.P. Lovecraft was one of the first to write science fiction, horror, and weird fiction stories. His work is frequently mentioned as a source of inspiration to painters, authors, movie directors, entrepreneurs, sculptors, musicians, and many other artists. At a small bar in SE Portland named Lovecraft Bar, which displays the work of local artists inspired by the macabre, there are three public steel sculptures by local artist Dave Gonzo. Dave is a member of the Pacific Northwest Sculptors and helps on the board.

The first installed sculpture is a small wall-mount tentacle that hangs next to the dance floor and DJ booth. Outside the bar, there is a site-specific sculpture of three tentacles protruding from the concrete sidewalk and crossing each other. The sculpture functions as a bike rack or bench where people can sit while engaging in conversation or having a cigarette. When the artist was asked about the piece and what motivated him to do it, he replied: "I stumbled across the small dark bar, and I would go to Lovecraft to relax, drink wine, and draw. It's very comfortable there for me and feels like a second home. I get very inspired while I'm there and came up with the idea and had to do it, like it was burning inside me and had to come out." Owner Jon Bachman loved the bike rack sculpture and commissioned the artist to design and fabricate a gate to keep patrons from wandering up the stairs into the employee area. The Lovecraft Bar features a diverse group of artists and strongly supports local artists and the DIY movement. The Lovecraft Bar is located at SE Grand and Oak, so if you appreciate local art, stop by for a drink and experience another dimension of reality!



Dave Gonzo's wall-mounted tentacle (left), bike rack/bench (above) and gate (below) can be seen at Lovecraft Bar in Portland.



"I stumbled across the small dark bar, and I would go to Lovecraft to relax, drink wine, and draw. It's very comfortable there for me and feels like a second home."

Member News



Laurie Vail's Fabricated Chickens at Guardino Gallery

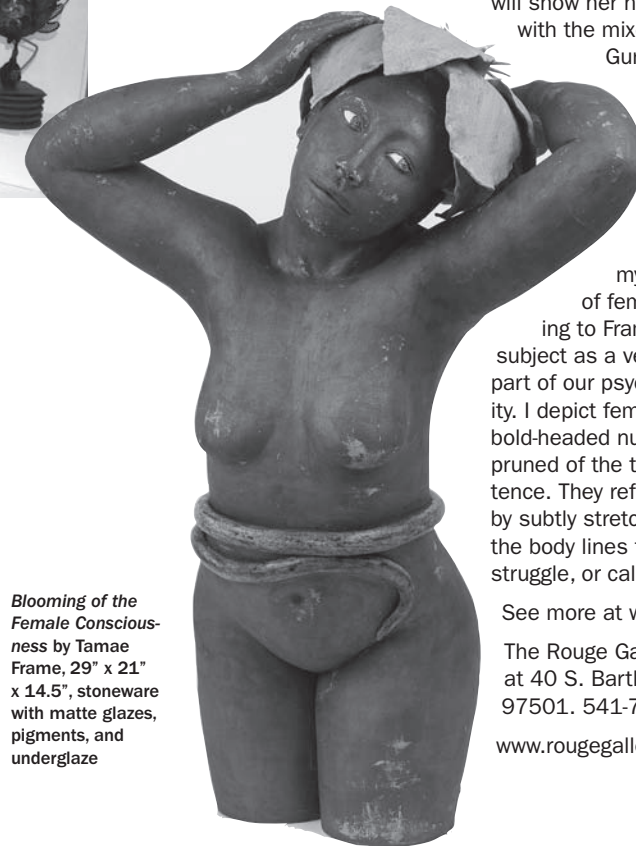
Laurie Vail's work was featured at Guardino Gallery in Portland during the month of May. The photo shows her with two of her chicken sculptures celebrating opening night on Last Thursday in April.

Vail, who as a child was a Navy brat and had to move a lot, now is happily grounded in her vast collection of scrap metal. She says, "I'm drawn to shiny, rusty, and twisted metal scraps, which I find everywhere, from dumpsters to street corners and back alleys. When I learned how to weld 15 years ago, I put those influences to work, using discarded materials to create unique, one-of-a-kind pieces."

She's been making sculptures out of scrap metal for ten years. "Each piece of scrap possesses an inherent design that becomes a source of inspiration to me,

containing the germ of an idea for my next sculpture."

You can see more of Laurie's critters on the PNWS website, www.pnwsculptors.org



Blooming of the Female Consciousness by Tamae Frame, 29" x 21" x 14.5", stoneware with matte glazes, pigments, and underglaze

Tamae Frame at Medford's Rouge Gallery & Art Center

Tamae Frame will have her first exhibit at the Rouge Gallery & Art Center in Medford July 12 through August 16, 2013. She will show her new body of work together with the mixed media work of Annette Gurdjian. The opening reception is Friday, July 19 from 5pm to 8pm.

"I create mystical figures in which body parts are connected with other organisms and creatures: they are the expressions of mysterious inner dimensions of female consciousness, according to Frame. "My work symbolizes the subject as a vehicle to convey the hidden part of our psyche and feminine spirituality. I depict female spiritual bodies in the bold-headed nude figures, which have been pruned of the trappings of their earthly existence. They reflect women's states of mind by subtly stretching, twisting or relaxing the body lines for expressing their tension, struggle, or calmness."

See more at www.tamaeframe.com.

The Rouge Gallery & Art Center is located at 40 S. Bartlett Street, Medford, OR 97501. 541-772-8118.

www.rougegallery.org

Things Have Been Looking *Grimm* for Seattle Artist David Rosenzweig



Seattle artist David Rosenzweig's sculpture *Gemini* made an appearance on the Tuesday, May 7 episode of NBC's *Grimm* TV series.

David Rosenzweig said he got a phone call out of the blue from the show's decorator: "He said he was working on the set design for NBC's *Grimm*, and he wanted to use one of my sculptures." Rosenzweig said the sculpture, *Gemini*, is of male and female ballet dancers back to back. It turns out the show was looking for art pieces to put in a living room scene for an upcoming episode and had seen a photo of Rosenzweig's sculpture *Gemini* on the PNWS website. They wanted to know if they could use it. "The episode is called 'Kiss of the Muse,' and the muse puts a spell on some guys," said Rosenzweig.

"This totally came out of the blue. I am thrilled," Rosenzweig added. To see the episode, stream it from www.hulu.com or www.nbc.com.

David Rosenzweig
artist@davidrosenzweig.com
www.dance-sculpture.com

Sara Swink Returns to Guardino Gallery This Summer



I Love You So Much by Sara Swink, 13" x 9" x 11", ceramic

The ceramic work of Sara Swink will be featured at Guardino Gallery along with paintings by Alison O'Donoghue. The show opens Last Thursday, June 27 and runs through July 23, 2013.

"The work of this show ranges from introspective and mysterious to playful," according to Sara. "If there is a theme, I think of it as 'my life in clay', consisting of one-off narratives that explore ideas about human motivation, psychological stances, and facing life's conundrums."

See more at www.saraswink.com.

Guardino Gallery is located at 2939 NE Alberta St. in Portland. 503-281-9048 www.guardinogallery.com.

Opportunities

Gallery 114, an artist-run gallery in the Pearl District, is looking for energetic artists to join our collective. Gallery artists work together to run the gallery, produce their own shows, and contribute to overall operations. If you are interested in applying, please check our website for details. <http://www.gallery114.org/index.html>

Washington County Artists Open Studios

October 19 & 20, 11am-5pm

Meet patrons, and show and promote your work in a full-color catalog and website. Accepting artists in all media who live and work in Washington County and who are willing to open their studios to the public from 11am-5pm both days. Participation fee \$100. Deadlines June 1 and July 15. Go to www.washcoart.org/registration/ for more information.



This shows a view looking up from below the buckyball.

the nested structure of Quantum Buckyball echoes the mathematical structure of the wave-function associated with the buckyball in our experiment: a spherical wave emanating from a central source.

I started making larger buckyballs from steel consisting only of the edges, culminating in a 30-ft (9-m)-diameter piece that was first installed in 2006. Now permanently sited in a picturesque private park in Oregon, the buckyball hovers above arm's reach over a sloped terrain with a small creek running under it. Suspended by three majestic Douglas firs that grow through the structure, the buckyball's orientation was chosen such that two opposing hexagons, one at the bottom and one on the top, are lying between the trees on horizontal planes.

The reason that such a basic shape succeeds as a piece of art is its placement within nature. Despite its considerable size, the buckyball's visual impact is quite subtle due to the relatively thin 2-inch (5 cm) tubing and the natural color of the corroding steel. The trees intersecting the buckyball dissolve the mathematical shape, symbolizing quantum physics' revelation that matter has no clear-cut boundaries. On a more general level, the installation speaks of the dichotomy between nature and culture, symbolized by the trees and the mathematical shape, respectively. If we read the sculpture and its environment this way, culture is poised between the two poles of embracing nature and caging her.

Quantum Man (2006–2007)

In quantum theory, matter is mathematically described as a wave, and therefore

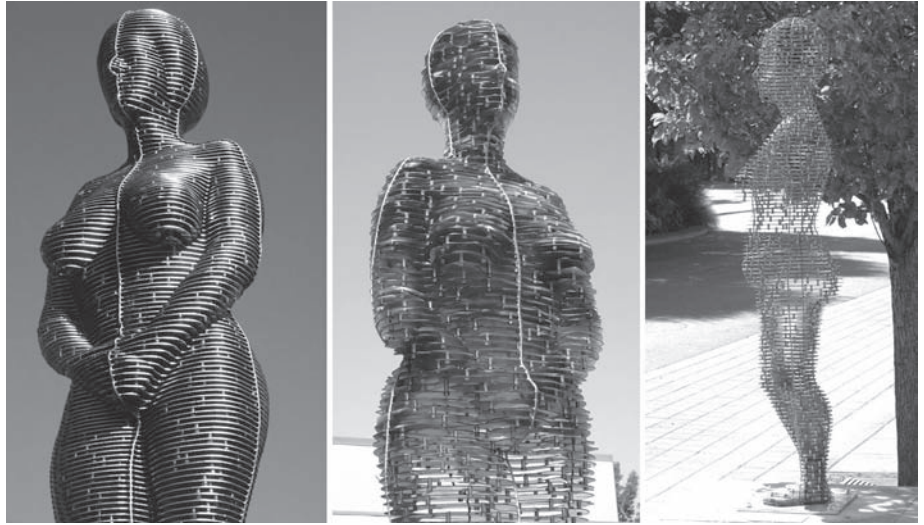
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Quantum Man by Julian Voss-Andreae

Quantum Sculpture, from page 5

each portion of moving matter is associated with a specific wavelength: the distance between two consecutive waves. My former group leader Anton Zeilinger once remarked jokingly that the fact that the wavelength associated with a typical walking person happens to be approximately the Planck length cannot possibly be a coincidence. This comment made me think about what such a wave-function might look like, and a few years later I created a series of sculptures inspired by this idea. Modeled in the shape of a stylized human walker, *Quantum Man* consists of numerous vertically oriented parallel steel slabs with constant spacing to represent the wave fronts. The slabs are connected with short pieces of steel. When approached from the front or back, the sculpture seems to consist of solid steel, but when seen from the side it visually disappears almost completely. This fascinating effect offers a range of possible interpretations.



Quantum Man (below) consists of vertical steel slabs with constant spacing. When approached from the front or back, the sculpture appears solid, but from the side it disappears almost completely. *Quantum Woman* (above) is made of horizontals, symbolizing a connection between earth and the heavens while *Quantum Man* is of the earthly realm.

Quantum Woman (2008–2009)

Quantum mechanically, the wave fronts associated with a moving object are always perpendicular to the direction of motion. Therefore, the wave-function associated with a man walking horizontally on the surface of the earth has vertically oriented wave fronts. For this reason I made *Quantum Man* out of vertically oriented slabs. To create a female counterpart to *Quantum Man*, I rotated the slabs into a horizontal orientation, quantum mechanically associated with motion in the up-down direction. The initial idea was that *Quantum Woman* would symbolize a connection between earth and the heavens, as opposed to her male counterpart symbolizing involvement in the orthogonal direction, the worldly realm. I made two versions of *Quantum Woman*, both based on a traditional life-size figure I created after a live model. For the first version, later titled *Science (Quantum Woman)*, I cut 175 slices out of a virtual model of the figure and had them laser-cut from stainless steel sheet to faithfully re-create the body's shape. The relationship between the fertile, female figure and its image in the shape of a stack of cold stainless steel slabs evokes the relationship between nature and the natural sciences; a complex reality is represented as a set of simplified maps. Both versions of *Quantum Woman* have four "seams," tension elements made from bent steel rod that vertically connect all slices. Those seams divide the figure neatly into the four Cartesian quadrants, further playing off science's insistence on imposing a grid onto the world in order to make it mathematically ascertainable. For the second version, I decided to lighten the materiality of the piece and to dissolve the accuracy of the outline by using fewer and thinner slabs and adding "quantum fluctuations," random oscillations to the outlines of each slice's original shape.

The second part of this article will appear in the August/September issue of the newsletter.



Offered by PNWS Members



Sculpting Classes with Carole Murphy

Create in a form of aerated cement that is considered "green" by the construction industry. Follow your own vision, even if sculpting is new to you, with help from a teacher that supports you in discovering it. For more info and to see a video of classes, go to www.carolemurphy.com or use your phone to QR to the website. 1405 SE Stark. Contact Carole at (503) 235-7233 or Sculptor@CaroleMurphy.com.



Garden Art 201, Concrete and Mosaic Sculpture



Create sculpture for the garden using specialty cement mixtures (including Milestone), steel mesh, and mosaic embellishments. Super easy, fun, and everything you need to know to continue creating at home.

All levels, everyone works at their own pace and skill level while creating an original sculpture.

Ongoing weekend workshops Sat. & Sun. 12-5pm; \$160 + \$35 materials; class size limited to 6

Private and small group classes available, too. Classes are held at the sculpture studio of Dean Hanmer on Vashon Island, just a few minutes from Seattle and Tacoma.

Contact Dean at (206) 567-5778
dean@gardenart201.com
www.gardenart201.com

Explorations in Clay: Form, Surface & Essence with Sara Swink

5-day Workshop July 15-19, 2013

This is an opportunity for in-depth exploration of your own personal image vocabulary and style by inviting images from the unconscious and expressing them in clay. Utilizing accessible methods such as collage and doodling, we entice imagery to the surface. In a series of extended exercises, we use hand-building techniques to develop and express ideas in vessel forms and sculptures. With lots of exercises, ample time for individual experimentation and play, we will find threads that run deep, give them a tug and see where they lead. In addition, we will draw from the experience and inspiration of ceramic masters through daily videos. You will come out of the workshop with a number of pieces, which will then be bisque-fired and ready for glazing.

The sequence of exercises allows for a structured but completely individualized experience, and is suitable for all levels, including beginners.

Monday-Friday, July 15-19, 10 am-4 pm (plus open studio hours) in West Linn
 \$375 includes materials and firing

For more info, please email sara_swink@frontier.com or call me at 503-638-9890.

The Funny Thing...Another Summer Fun Clay Workshop



Please join me and 5 to 6 others in making your very own Personal Garden Guardian.

And if time allows, create a simple Wall Hanging Mask of your own design.

ing Mask of your own design.

Create one or two stoneware garden pieces during a 3-day workshop!

We will work outside under a canopy with the garden as our backdrop and inspiration. Bring your ideas and enthusiasm. Collect plant materials as needed for creating your one-of-a-kind mask or guardian. I'll show you how!

Friday July 19, 6-8pm

Two hours to set up and begin your pieces. Wine & snacks provided! (For 21 & over of course!!)

Saturday July 20, 10am - 2pm

Four hours to finish the sculpting and details. Please bring something to share for a quick mid-day pot-luck lunch break. I'll provide tea & strawberry lemonade.

Aug. 1- 15, 2-3 glazing hours arranged by your schedule

Flexible times and days to glaze your bisque fired piece. A schedule will be provided for sign up. Pick up your finished work by appointment after the firing is completed.

Cost includes all materials and supplies..... only \$150 per person.

(Just bring your own apron & any images you want to work from)

Call Michelle Gallagher @ 503-232-9094 to register

PAYMENT DUE by July 1 via PayPal or check. Space is limited so don't delay!

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PNWS Sculptor Spotlight

Mitch Lang

I began making wood sculptures about seven years ago, when I was in my mid-fifties. Now I'm retired and spend about half my time designing and carving. I find this work deeply satisfying and totally absorbing.

My sculptures are inspired by the quiet simplicity and harmony of traditional Asian design. Because our lives are increasingly filled with busyness and distraction, my aim is to let the viewer experience a few moments of attentive stillness. Some of my sculptures include Sanskrit calligraphy found in ancient Buddhist texts and art. These letters represent particular spiritual principles (such as com-

passion). Besides their intrinsic meaning, I love the elegance and dignity of these sacred forms.

I use power carving tools to rough out the sculptures and hand tools (rasps, files, sandpaper) for finishing. For me, part of the joy of sculpting wood is revealing the often breathtaking colors and grain patterns of a beautiful piece of hardwood when it's sanded and polished. I don't sell my sculptures. Instead, I give them to Buddhist centers and other non-profit organizations that promote understanding and compassion.

View Mitch's work at mitchlangsculpture.com



Sanskrit #2, 22" tall, Bubinga, Quilted Maple, African Blackwood, Ebony, Brass

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Wrought Iron Sculpture ...or Giraffe? Yes!



This close-up of welded scrap metal is actually the side and interior of a 10-foot giraffe sculpture. The stainless steel and rusted scrap iron giraffe by Joe Warren stands proudly in the

outdoor garden of Love Art! Gallery at SE 13th Ave and SE Spokane St. in Sellwood.

Go check out this and their other metal sculptures!

—Jim Ayala