

# Reflections of Hawai'i by Big Island Glass:



Big Island Glass.

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By Shawn Waggoner

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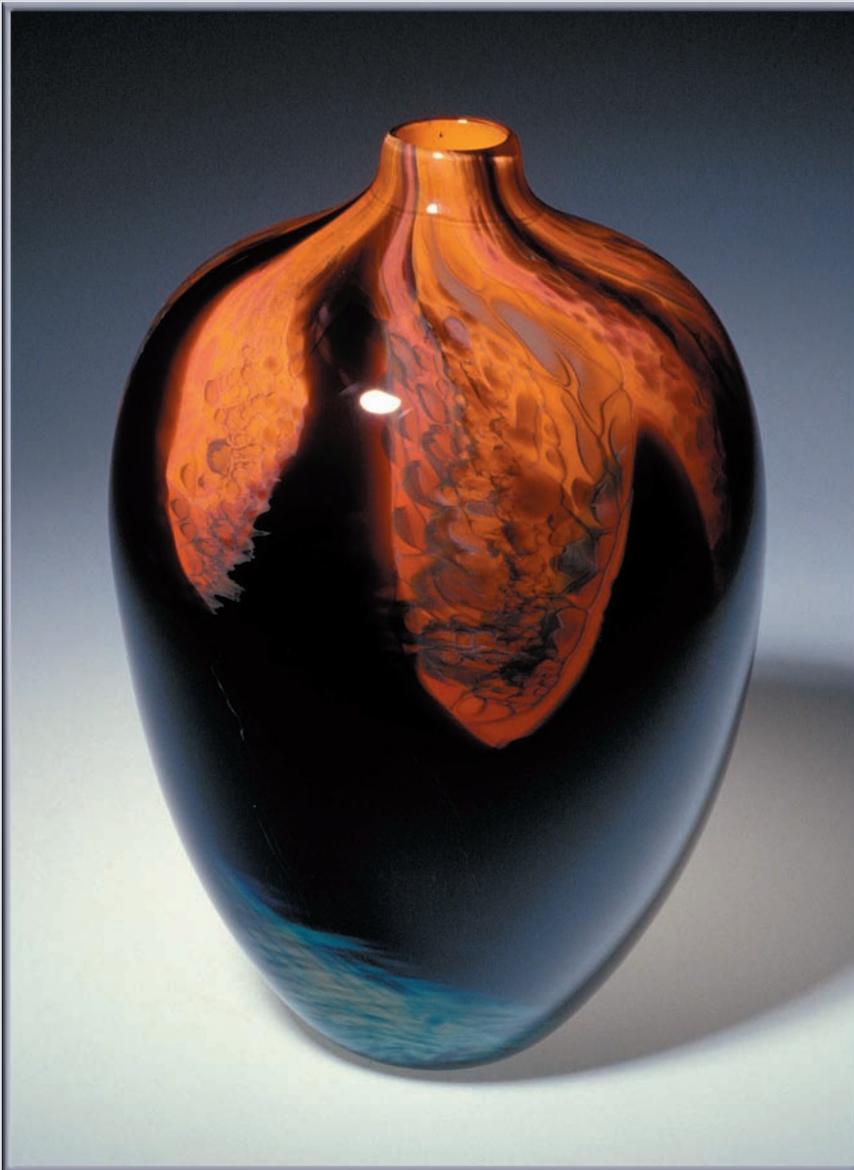
Artists Hugh Jenkins and Stephanie Ross live on an island of diverse environments. The transparent water of a still pool; turbulent waters at the foot of a waterfall; rocks that glimmer with ocean spray on the beach; molten lava flows that creep into the sea; lush trees and foliage of native forests – all provide inspiration for the traditional and non-traditional hot glass forms of Big Island Glass. Vases, bowls and calabash shapes reflect and express the passion Jenkins and Ross feel for the beauty and variety of natural life on Hawai'i.

Their newest work, a series called Pohaku (the Hawaiian word for rock or stone), began as an idea and a series of drawings by Ross in 2003. Jenkins and Ross started making the work in glass in December 2009 as an exploration of rock shapes and their asymmetrical forms. The work evolved to show the Pohaku in various environments.

Says Jenkins, "We played with the idea of ani'ani, which means the condition of water so still that everything beneath the surface is absolutely clear. It also reflects back on the surface whatever is above the water — the perfect transmitting and reflective surface."

Jenkins and Ross also explore the characteristics of lava in glass vessels that reflect a unique interpretation of the majestic, molten, amorphous life force and the source of all rock that forms the Hawaiian Islands.

Their collaborative work has evolved into a highly colored series of blown bowls and vases that depict not only impressions of the varying climate and environment of Hawai'i, but also light, weather and time of



"New Eruption," Hugh Jenkins and Stephanie Ross, Big Island Glass, 8 x 8 x 15", '03/'05. PHOTO: Macario.

# Hugh Jenkins and Stephanie Ross

day and the impact those elements have on natural subjects.

Ross earned her degrees first at California College of Arts and Crafts in Oakland, and then received her graduate degrees from the University of Hawai'i, Manoa. She has taught art to high school and elementary school students since 1975. In 1997 she opened her studio, where she creates silk work and paintings as well as teaches private students. Ross was introduced to glass in 1995 and has worked in collaboration with Jenkins since 1996. She designs the color and suggests shapes for each piece. Then when the color has been applied, Jenkins takes over to realize the form.

Jenkins, who has worked in glass since 1969, was introduced to glassblowing at the Foundry in Honolulu. He introduced glass to the Punahou School art department in 1972 and continued to teach there until 1998. During summers and sabbatical leaves, he has also taught glass at Penland School of Crafts in North Carolina. His glass has evolved through several functional and sculptural phases, usually including highly polished optical surfaces. In 1999 and 2000 he created a glass teaching program at Waimea on the Big Island, then moved to Honoka'a in 2001 to set up his studio.

Jenkins has earned a reputation for his knowledge of and dedication to building more efficient hot glass equipment. At Big Island Glass, he built a heat recuperating furnace that now runs on vegetable oil, a move which has allowed his studio to stay in business. He has attended many conferences where he participated in panel discussions on the topic and has authored several articles including "Bioglass, Green Studios Benefitting Artists and the Environment," which appeared in the 2008 "Glass Art Society Journal," and an article in "Ceramics Monthly," December 2007. He is currently helping other glassblowers improve the efficiency of their equipment.

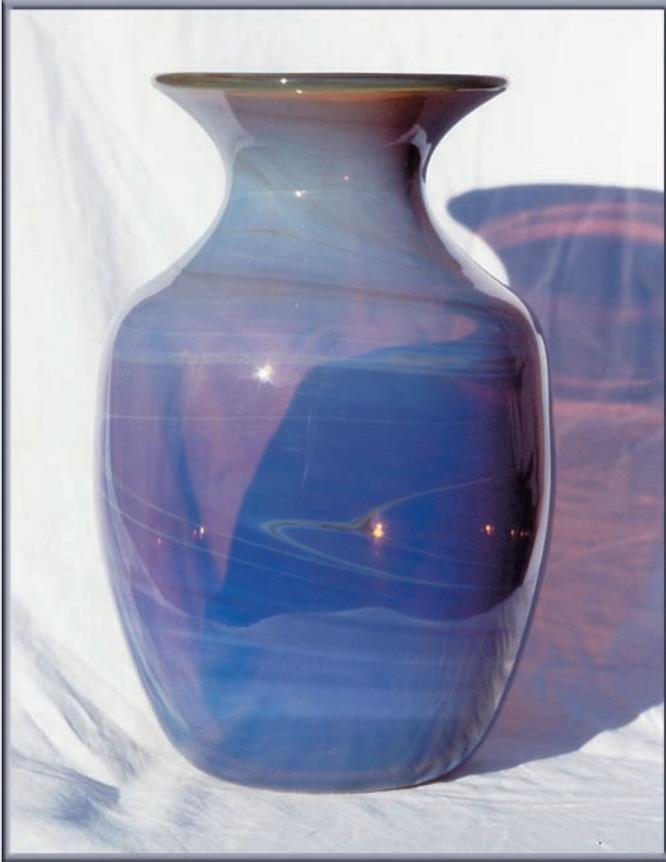
From their studio on the Hamakua Coast, Jenkins spoke with "Glass Art" magazine about his collaboration with Ross, their latest work, and the newest developments in fueling Big Island Glass more efficiently.



Stephanie and Hugh working. PHOTO: Kandi Schafer.



"Chain of Craters group," Hugh Jenkins and Stephanie Ross, Big Island Glass, 4 x 4 x 6", 5 x 5 x 5", 6 x 5 x 4", 2010. PHOTO: Sarah Anderson.



*Hugh Jenkin's early work, circa 1975.*

skilled at varying the outcome of the color composition. Different glasses have very different characteristics that causes 'form to follow color' in the blowout. I was more capable of handling the crazy behavior of the resulting multi-colored mass.

As the color, form and scale of the work has increased in complexity, we act more to assist each other as needed throughout the progress of each piece. Most of the time, we have a general idea of what we are shooting for. Sometimes we let it evolve as we go, but we always work to agree on the final outcome before we call it finished. We talk a lot before, during and after making a piece.

Still, occasionally, the glass has a mind of its own. This sometimes leads us in new directions, forcing us to cooperate with the natural behavior of the material. We borrow shape ideas from many cultures and periods as we explore ideas derived from nature in developing the range of our pieces. The diverse forces of the Big Island of Hawai'i have been our main inspiration, from the ocean view from our front porch, to green pasture and forests behind us on the slopes of Mauna Kea and every micro environment from Kona to Volcano where Pele's fiery forces have led to some of our most visually powerful pieces.

We feel that we have moved away from literal pictorial interpretation of say, almost reportive lava flow images, to more abstracted references to the color, heat and force. It may seem that we are working toward complexity, but we feel we are working toward impact, sometimes complex, but just as often subtle.

We say that perhaps the most creative thing we have done is to create this working relationship. True collaboration occurs when the input of more than one person is essential to the concept and outcome of the work.

**GAM: Describe Big Island Glass and the Gallery.**

HJ: We work out of a shop building on our home property just above Honoka'a town on the northeast coast of the Big Island of Hawai'i. We moved here in 2001 and set up a small 80-pound furnace, glory hole and annealer that my son and I built for him as a college studio project at Sonoma State in 1999. Since then I have built newer equipment as needed. We now have a 135-pound furnace with three different glory holes and three annealers of different capacities. All of the hot equipment is recuperated, with the furnace now operating on recovered cooking oil.

Big Island Glass Gallery was opened in 2004 primarily to sell our work, and has also presented work by other local artists to complement the glass and provide a richer offering. We show and sell Steph's silk work, paintings, some wood craft and jewelry.

**GAM: How did you meet Stephanie and what led to your collaboration?**

HJ: Stephanie and I met in 1994 at a cross country meet at Punahou where I was teaching and coaching. Steph had actually taught summer art courses in elementary school at Punahou, but I did not teach summer school, so we had not crossed paths before.

By 1996 she had watched me enough to think she wanted to try glass. I set up an adult class, mostly for other teachers who wanted to give glass a try, and Steph got her introduction to the material in that class. As a colorist, she had very limited patience with only clear glass, and immediately got into trouble, as I had warned her would happen, with too much color too soon. 'Form follows color,' was my explanation, which mostly just irritated her.

When we started working together on glass pieces our roles were very distinct. Stephanie was carried away with color and very



*"East Rift Zone," Hugh Jenkins and Stephanie Ross, Big Island Glass, 7 x 7 x 7 1/2", '09/'10. PHOTO: Sarah Anderson.*

**GAM: Describe the Pohaku and ani'ani.**

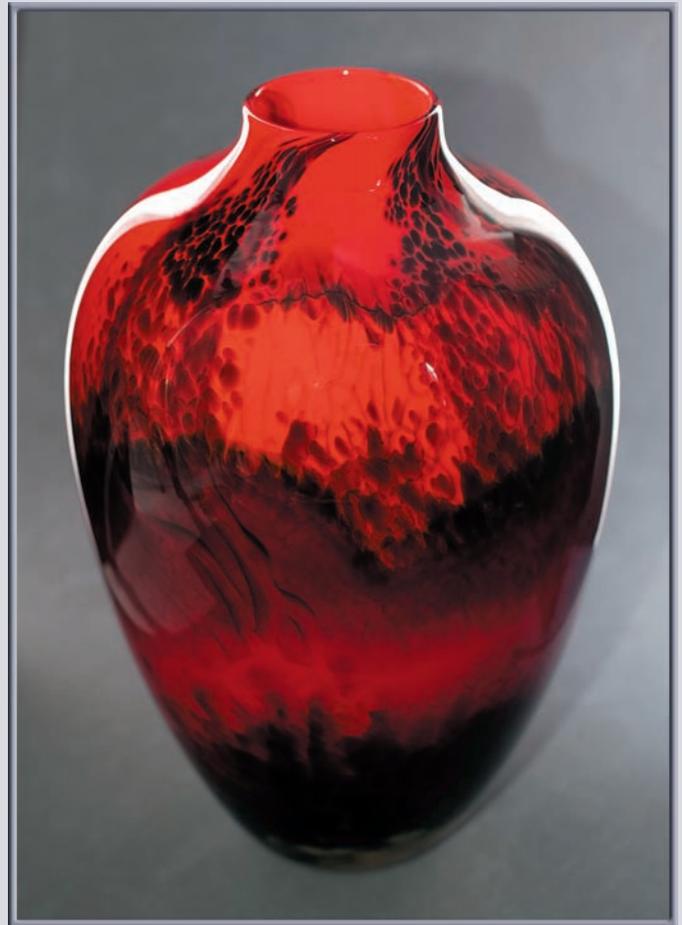
HJ: As a result of moving to the Big Island, we were thrown into a much different environment. We live on a huge mountain in the middle of the ocean with every climate zone except arctic. We have the ocean, raw volcanic areas, jungle, desert, high peaks, etc. There always seems to be change in the weather, and though the weather is not as seasonal as in some other places, we do have wet stormy seasons, flowering periods, and of course tropical weather – and some years even snow. Mostly what we make reflects some part of the surroundings.

Most recently we have moved away from culturally derived shapes into more organic shapes that might come from the erosion of rocks. We call these the "Pohaku" (rock or stone in Hawaiian). We think of them as capsules of a location with both reflection and containment in the coloration. Glass was not known to the Hawaiians. They applied the word ani'ani to glass when they saw it.

**GAM: Where is the work exhibited and sold?**

HJ: Besides our own gallery, we sell through galleries around Hawai'i. Volcano Art Center Gallery in the national park, Isaacs Art Center in Waimea, Pura Vida in Kapa'au, and The Academy of Art in Honolulu are currently our main presenters. We have had a hard time with the complexities of working with mainland galleries, keeping up with inventory accuracy, etc. We seem to work best with venues reasonably close to home, with personal contact. We also seem to work well with clients who contact us directly and work by photo and e-mail.

From July 31 to September 12, 2010, our work was exhibited at The Volcano Art Center. This was our second show at that gallery. This is a non-profit center with its gallery right in the national park



*"Kilauea," Hugh Jenkins and Stephanie Ross, Big Island Glass, 8 x 8 x 12", '09/'10. PHOTO: Sarah Anderson.*



*"Birth of an Island," Hugh Jenkins and Stephanie Ross, Big Island Glass, 7 1/2 x 7 1/2", '09/'10. PHOTO: Sarah Anderson.*

center in a building that started out in the 1890's as the inn. The show, titled "Reflections of Hawai'i," allowed us to work on the idea of glass as an analogous expression of ani'ani.

We did not want to show only the most recent and best pieces we had done in the previous year. We also wanted there to be something distinctly different from what we were known for. Our work since moving to the Big Island had been based on traditional shapes colored with our responses to the environment. The show's theme required that we get the visual meaning and the physical properties of glass to work together. The idea was a glassy object sitting in an environment, being part of and reflective of that setting.

Stephanie has wanted to create more asymmetrical pieces for several years, but we didn't want just another type of ruffle-edged bowl. With some time set aside to just work on thematic concerns and no preset vision of the final outcome, we began pursuing this idea early in 2010. It took a while; initially the shapes were clunky. Finding an organic connection between how the color was composed and forms that would be possibly found sitting in natural situations required that we really look at what we made each day and not be satisfied until we felt something good was happening.

We made about 50 pieces we felt might work in the show and ended up displaying 34. The show included these new asymmetrical forms and the best and newest of our more traditional work.

**GAM: Also last July, you and Stephanie began work on a large corporate commission. Talk about this project.**

HJ: The commission involved creating a corporation employee gift of 400 pieces. We were contacted in early July, just as our show

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*"Still Water (ani'ani)," Hugh Jenkins and Stephanie Ross, Big Island Glass, 7 x 6 x 12", 2010. PHOTO: Sarah Anderson.*

pieces were being completed. The deadline for delivery was the third week in October, and samples had to be submitted and approved before we could proceed. We proposed five different color schemes, and with one scheme approved, we ordered color and were able to start work in August.

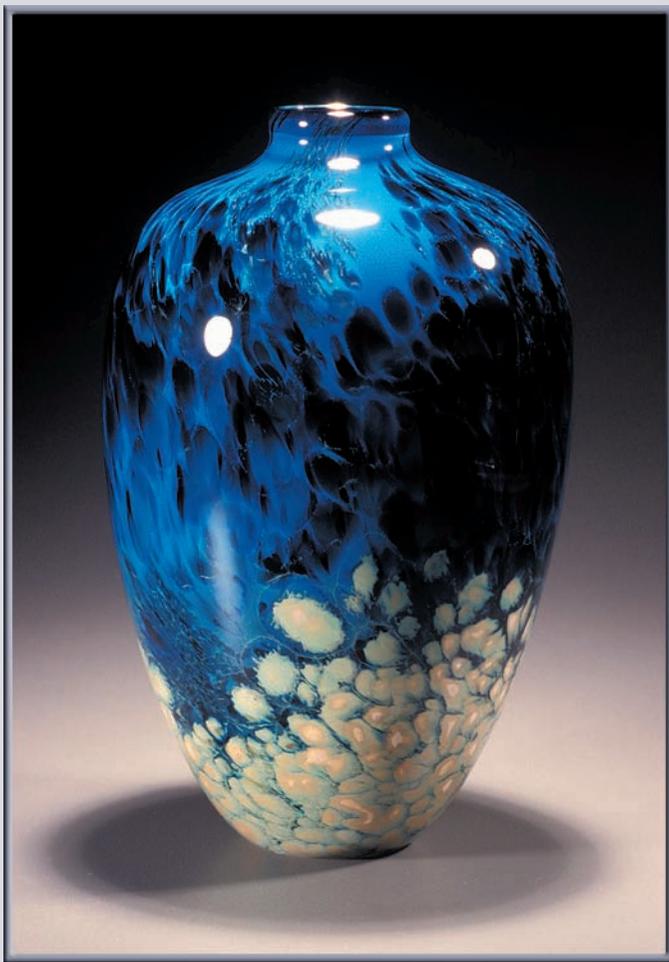
By ourselves, Steph and I were able to make 10 to 12 a day, so we thought with eight weeks we could have the job done. But there was no give when charging had to fit in. We were lucky, and both of our sons came to work for us during those two months. We were able to get about three and a half days of work from each tank of glass, and so were on a 5-day work cycle with charging. Depending on the color scheme, we could do 18 to 22 pieces a day. One day we did 24 to finish a group, but that day went too late to repeat every day.

All would have gone very well except we kept running into color bars that were loaded with bubbles, or had some other faults. There were metal inclusions, surface folds that contained foreign material, and

even some ceramic material inclusions. It ended up taking much longer than we predicted to get the number of quality pieces needed. But it brought us much closer as a family and got the boys together after not seeing much of each other for several years.

We have come to believe that our color suppliers are very careful when we order one or a few bars, to select out good ones. But when we ordered 20 or more bars all at once, they just sent what came out of the crate. We were very surprised by the physical appearance of some bars. We had to select the color bars carefully, remove inclusions if we saw them, and still do a very large overrun.

We have done this kind of job on a much smaller scale before, up to 200 pieces. It is not our preferred way to work, but having spent months getting a show ready left us without sufficient sales for the year. This job helped us get through the year economically. I think we will remember 2010 as one of our most creative and most



*"Deep Reef," Hugh Jenkins and Stephanie Ross, Big Island Glass, 7 x 7 x 11", '03/'05. PHOTO: Macario.*

numbing years in the studio; funny to have both so close together.

**GAM: Glass was not your first choice of vocation. Talk about your science background and what sparked your initial interest in glass?**

HJ: My first introduction to glass came as an accident. My brother had set up a wood working shop in an old foundry building that was being converted to art and craft studios. Some ceramic grad students from the university had set up a small co-op studio and were doing some glass work on the side. This was 1969, and no one had any real training. It was all very experimental, funky glassblowing, using fluxed bottles.

I was struggling at that time to finish a graduate degree in Biological Oceanography and often helped my bother with some of his pieces. I had done many types of hand worked objects on the hobby level as a kid and was competent on the lathe. I made knobs, legs, finials, dowels and such out of Hawaiian hardwoods for his pieces. But I also got to watch the glassblowing.

Something about it made sense to me, and I was anxious to give it a try. Not long after I was spending more time on glass than I was on grad work. I had gotten an ulcer over the stress of the science part of it.

I know to this day that I would not have been a good scientist. I was curious, liked the investigation part, really liked doing the apparatus and equipment set up. But I could not deal with all the data and presentation formalities. What I have done in the last decade with energy efficiency and equipment modification has been a perfect application for curiosity and experimentation with very direct rewards based only on the results.

**GAM: You introduced glassblowing to Punahou School art department in 1972, where you taught until 1998. Describe your glass program and the facility.**

HJ: By 1972 I was substitute teaching and had a long appointment at Punahou in biology and for summer school. I was asked to take some students after school and try working with them in glass.

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*Production work in the studio.*

By summer it was decided to build a small glass studio. The shop was a fenced in covering over a driveway. We had two furnaces and three glory holes to start, and worked on four benches almost from the beginning. I could occupy eight students in the hot shop by rotation and assisting at each bench. By 1973 we had a curriculum in place as an elective in the art department. Whenever I could, I spent time reinventing the wheel and practicing skills as best I could discover them.

In those first years I had some contact with Dick Marquis, Marvin Lipofsky and Dr. Bob Fritz, and read everything I could get my hands on, like the notes from Dudley Giberson and Fritz Driesbach, but I had no real instruction. I was steeped in classical European shapes and of course had a lot of chemistry education. I worked hard to find forms and color recipes that worked well together.

It was not until my first sabbatical in 1979 that I had a chance to work under a teacher for any period of time. I got the chance to spend the spring at Penland working with Fritz Driesbach. That was when I started to feel that I had some control over glass and some new vision for the material. Meeting Mark Peiser and getting to work in Harvey Littleton's cold working shop made a big impression on me about what could be done with glass after the blowing was finished.

The next year, I had the opportunity to design and build a new glass shop at Punahou. Having seen the open floor set-up with multiport glory holes at Corning during the '79 GAS conference, I

created two, four-port glory holes and set up an eight-bench shop with an open floor arrangement. Cold working became a larger part of the program. Also with the larger shop, we were able to handle more students and offer more advanced semester classes. Students could move past basic technique into some experimentation and personal expression.

**GAM: What inspired your focus on energy efficiency and alternative and sustainable fuels for glass and other fine arts? Talk about your involvement in this endeavor, i.e. conferences, lectures, the design of your own studio and equipment.**

HJ: In some of his earliest writing, Dudley Giberson spoke about leaving some resources for future generations. You can't burn the same gallon of propane twice, was the theme. I was a single-teacher program at Punahou and had to justify my budget every year based on number of students, cost of fuel, etc. I could see the cost going up from 30 cents a gallon in '72 to 80 cents by '79. The move to multiport glory holes was a huge step in controlling the cost per student hour.

"The Hot Glass Information Exchange," published in 1981, brought out many clever ideas about the reuse of waste energy from glass furnaces. By '85 Charlie Correll was working on practical systems to use in furnaces to recuperate heat, the capture and return of waste heat from the furnace exhaust by preheating the incoming combustion air. There's a direct relationship between the temperature of combustion air and fuel savings.

For my second sabbatical in '89-'90, I set out to apply some of this new information. It was also time to rebuild some of our aging equipment at Punahou. I was invited to teach a spring class at Penland that year and along with Bill Worcester, we built the first recuperated furnace at Penland using Charlie's system. I then built the first recuperated furnace at Punahou and was committed to that technology.

My own attempts to design and build a recuperator started in '96-'97, not long before I decided to leave teaching. To me, blowers had always been a weak point in operating glass furnaces. I started using venturis, a pressure driven air intake normally using the gas pressure as the power source, with high pressure air in place of blowers in my burners, including for the air power in the Correll recuperators. It struck me at some point that a venturi out of refractory could be used to pull air down a stack heat exchanger and then push the hot air into a burner. I made just enough of an experiment at that point to know that the idea would work, at least to some extent.

After leaving teaching in '98, it took a few years to find a suitable place for a studio. In the meantime I did install some traditional furnaces, but was thinking about the design issues that needed to be worked out for recuperation. I started my studio with traditional burner designs in 2001, but the cost of using 900 to 1000 gallons of propane a month was painful. By later that year, I remodeled the furnace and saved 300 gallons a month. Better heat exchange design ideas began to flow.

I also started thinking more about glory holes. In 2003, Charlie and I presented together at GAS in Seattle, and I was confident in saving 50 percent or more on furnaces, and though I had started work on a glory hole, I was not ready to make predictions. I contributed a chapter to Henry Halem's 4<sup>th</sup> edition of "Glass Notes" during that year as well.

By 2007 GAS in Pittsburgh, I had reduced the fuel use in my studio with larger equipment to 320 gallons a month. Propane had tripled in cost by then, so I was just keeping up. But I had promised to work on vegetable oil.

Vegetable oil has been its own adventure. Problems of reliable

supply, contamination, storage, filtration and burner design, each caused delays in the progress. I finally decided to work with food grade soy oil to get a working burner and then see how reclaimed oil would work. But, I can now claim two years of successful glass melting with oil, and increasing efficiency and reliability of operation. In 2010, we produced the best glass quality that this studio has produced. And with recuperation and veggie oil, we had a lower energy cost than in 2001 by about 25 percent.

**GAM: Do you feel interest in “going green” is tapering off since we are technically not in the midst of a fuel shortage?**

HJ: Going green was not my original intent or inspiration. I was trying to reduce costs, but I never forgot Dudley’s words from the ‘70s, that reducing our energy use would become a matter of survival someday. Actually, our propane cost has dropped in the last 18 months from a peak at \$4.95 to just below \$4 per gallon today. Across the country I hear that natural gas is also less expensive. I don’t think it will stay that way, especially if the economy turns around and the markets get stronger again. Energy costs will follow world demand.

I do think that with energy taking a large bite out of gross income, that most successful glass studios will have to pay some attention to efficiency. It does take investment to make these changes whether with recuperation, vegetable oil or both. But I think the interest is there, and now that the possibilities are proven, other shops will join in. The attendance at energy discussions is still very strong as was shown in Louisville. I think that the school shops



“Grotto,” Hugh Jenkins and Stephanie Ross, Big Island Glass, 7 1/2 x 7 x 5”, 2010. PHOTO: Sarah Anderson.

have to take some leadership in this area as well. Most of the necessary information is out there and essentially free.

**GAM: How can artists interested in incorporating recuperation and vegetable oil in their studios find helpful information or instruction?**

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HJ: For recuperation, Charlie Correll and I are both committed to helping when asked. A lot of what we have learned is written up in "Glass Notes," by Henry Halem. I contribute when it is applicable, to discussions on Craftweb and Hand-made Glass. I also will help with the decision making when contacted, and I have worked with several studios to build in or retrofit recuperation into their equipment. I am not specifically an equipment builder, but have learned a lot about how to make recuperators fit into older furnaces and glory holes. The most effective time to build in recuperation is when building new equipment.

For vegetable oil, there is little in print. I got a lot of inspiration and ideas from the Altfuel discussion board on Yahoo. Though this group is mainly working to make heating their homes and water more ecologically responsible, their experimental approach and relatively open sharing of information was a guiding light for me when things were not working too well.

Another Yahoo group that deals with conserving energy is Wastewatts. Conversations with Glenn Randle, who was using waste motor oil, helped me with some decisions about handling oil.

The BioGlass panel group from Pittsburgh GAS conference has been committed to having an active discussion board. It may still get going, but the Web site is a good source of references for more efficient and alternative approaches to studio operation. Most of the equipment builders have at least some efficiency options, including recuperation. We have all taken somewhat different approaches, but the concern for glass equipment using less energy is common to all of them.

**GAM: What are your future goals for both your studio and the idea of reducing studio fuel consumption?**

HJ: I am slowing down. I can't lift as much or work as long or hard as 10 or 20 years ago. Ideas are a larger part of my life now than before. Having completed a major show this year and taking on a large commission, has pushed my (our) limits. I think that we'll produce less, but hopefully still the best we can.

I will continue to help studios that have the same vision I have to do more with less where possible. No class has ever been offered on how to make glassblowing less energy consumptive, and I don't know if it ever will happen. I think the progress will be one studio at a time.

For several years, I felt like a bit of an evangelist for recuperation and energy efficiency. Now, I am more interested in keeping some balance with life. We have tried to grow as much of our own food as possible, and heat our water and produce electricity with solar energy. But sometimes it seems like we are still running to keep up with the pace of life, the cost of computers and cell phones and maintaining a decent car. I don't have a decent truck, and that is OK. My tractor is more useful to me than my truck on most days.

The principal at Punahou would provoke us to think about things at the start and finish of each school year. Once he asked "do you live to work or do you work to live?" I would still like to resolve my confusion about that. Since my son and several of my students have taken up glass as a profession, I would still like to lead in showing that glass can be a means to living without being all consuming in its demands.

*For more information go to [www.bigislandglass.com](http://www.bigislandglass.com). You can also find useful information and graphics of equipment in the March/April 2010 issue of Keola, "The Life" magazine. ♦*

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