



*Paul Chaleff's kiln
at Pine Plains, NY.*

Passionate Fire

*Tony Moore interviewed a group of US woodfirers
from the Hudson Valley and talked to them about their kilns*



Roger Baumann with his 80 cu ft catenary arch cross-draught kiln.

“Opting for the less controlled but often times more magical results of a wood-fuelled kiln I give up control to the flame... I hope for the unexpected.

ROGER BAUMANN’S FIRST KILN was built in 1979 on his property in Lake Peekskill, NY. It was a single chamber ‘igloo’ domed kiln with an external firebox. It was intuitive in conception. The second kiln, which was used from 1983 to 1994, was a 220 cu ft double chamber, sprung arch, cross-draught, with the first chamber having an external firebox. The second chamber had an internal firebox. It was based on a Fred Olsen design. Eventually, this kiln proved to be too large for his needs because it required long periods of production between firings. It was torn down to make way for a smaller single chamber kiln, also based on an Olsen design. The kiln was built in 1994 and is frequently fired throughout the year. Students, friends and associates join in pleasurable communal firings where everyone democratically is able to have their work in the kiln. It is a single chamber, 80 cu ft catenary arch cross-draught, with a large internal firebox and a low bagwall, so there is a good amount of fly-ash in the bottom section. Additional ash is thrown up inside the ashpit by the introduction of a long shovel through the firebox air ports into the coal-bed. As the ashes are stirred, fly-ash is carried throughout the kiln. Typical firings last from 24 hours to 30 hours to cone 10 half down (1315°C/2399°F).

The wood is a mixture of recycled scraps of construction debris and mixed cordwood, depending on availability. Works are normally glazed on a Saturday morning when everyone has gathered to assist; the kiln is loaded, there is a four hour pre-heat commencing in the late afternoon followed by the firing and splitting of wood throughout the night. Finish is late Sunday afternoon.

Baumann’s clay preference is a high fire stoneware with tooth. He would like to use natural clays, but with the demands of a family and a full-time pottery teaching schedule he now opts for pre-mixed commercial clays such as T-1 Sculpture Body and White Stoneware with Sand, from Amherst Pottery, Massachusetts. He uses four or five glazes, such as *shino*, *tenmoku*, *saturated iron*, *celadon* and *nuka* (with the rice ash for the *nuka* shipped by a good friend in Japan).

PAUL CHALEFF, ANCRAMDAL, NY, went to Japan in 1976–1977 to study ceramics. While there, he assisted in the firings of Takashi Nakazato and Shigeyoshi Morioka's kilns, as well as others, and also visited archeological kiln sites in preparation for building his own kiln in the US. This was completed at his studio in Pine Plains, NY, in 1978. The 32 ft anagama which he built was based on two types of kilns. The first 3 m (10 ft) of the kiln was a classic teardrop shape, while the next 6 m (20 ft) was a straight tube. The concept was that the front teardrop would give a dynamic fly-ash effect and the tube a soft charcoal effect. Because he makes large works he wanted to use a slower flame to reduce thermal variance which would cause the pieces to crack, so the kiln was designed with a low slope of a 30 cm (1 ft) rise for every 3 m (10 ft) of length. The steeper the rise, the faster the flame. Slow flame maintains reds while fast flame turns iron-bearing clays brown with hard glossy surfaces.

His kiln design worked well to produce the kind of effects he wanted. There were six stoking ports built in to the side of the arch of the kiln. These were placed every 75 cm (30 in) apart. In this way, after reaching temperature, coals could be easily built up to completely cover the work. Over the last 30–50 hours of a six-day firing, the charcoal would produce the soft matt finish which he desired. Later firings were as long as 14 days, producing rich colour and a finer aesthetic quality. Depending on the maturing temperature of the clay body, he discovered that cone 8–10 (1260°C/2300°F – 1305°C/2381°F) created the richest colour range for the light bodied clays, rather than going to cone 12–14 (1335°C/2435°F – 1400°C/2550°F). He also later introduced water reduction into the back of the kiln, finding cone 7–9 (1250°C/2283°F – 1285°C/2345°F) gave the richest colours.

Chaleff believes he has an American sensibility toward his kiln, clays and production, as do other US potters inspired by the Japanese tradition. He feels that American artists approach their work and materials in a more conceptually based manner than do the Japanese who are more inclined to work from the 'natural' material itself and within tradition.

Chaleff has experimented with adding various materials to his clays: silica sand to develop the growth of crystals, feldspar stones, or granite from Falmouth, Cape Cod, which he first calcined. He also experimented with shale, which bleeds and melts, as well as jasper from the California coast.

In his experiments Chaleff used an optical pyrometer to register the exact heat at certain locations throughout the kiln. He registered that if two pots were almost touching, the heat at that point was hotter than the surrounding surface. He theorises that in super heat, the iron in the clay body becomes a free agent, flowing toward the hottest area of the clay, giving the red colour. Where the flame is constricted and forced through a small opening there is faster flame movement and higher temperature. This is similar to the Venturi principle, that is, constriction equals more heat and a faster flame. Chaleff's theory is that the same effect is caused between pot surfaces which are almost touching. He adds that it is the Venturi principle which is also operative in the 'secret chamber' of a Bizen kiln. Chaleff's second anagama, now under construction at his new studio and property in Ancramdale, NY, will be smaller than the one described above. It will be wider to accommodate larger sculptural works which can be directly rolled into the back of the kiln on a trolley. Side stoking ports will be 85 cm (34 in) apart and there will be a more complex adjustable flue system in the back target wall of the kiln so that the flame can be drawn across the kiln to the chimney at various heights. Paul Chaleff continues to fire electric, salt and a gas car kiln. He no longer makes functional work.



Top: Paul Chaleff's 10 m/long kiln with six side stoke ports each side. Above: Paul Chaleff's gas-fired car kiln used for large-scale sculpture



Pascal Chmelar's anagama kiln wrapped up for the winter.

Pascal Chmelar uses only one glaze, a Chaleff Shino Cone 10 recipe:

<i>F4 soda felspar</i>	<i>18.4</i>
<i>Spodumene</i>	<i>15.2</i>
<i>Soda ash</i>	<i>4</i>
<i>Nepheline syenite</i>	<i>45</i>
<i>OM4 Ball clay</i>	<i>16.4</i>
<i>Bentonite</i>	<i>2</i>
<i>Total</i>	<i>101</i>

PASCAL CHMELAR, PALENVILLE, NY, built his anagama kiln in 1995. It is a large teardrop shape, with a constriction in the middle, and then a tail that opens the chamber up again in the back. Basically, it is a Venturi principle, measuring 6.2 x 1.5 x 1.5 m (19 ft long x 5 ft high x 5 ft wide). Chmelar likes the ash to loft slowly on to the top of the pots in the front and carry to the sides of the pots in the back.

He uses up to 11 different clay bodies which incorporate commercial and indigenous mixed clays. While white stoneware and porcelains are placed high and up-front in the kiln, he considers the more varied the placement of the clay bodies the more interesting the results can be. Some cone 6 (1230°C / 2245°F) brick clays are dug from the creek behind his house. These clays have character instead of the commercially overly refined clay bodies. For Chmelar, the use of a particular clay body is dictated by the form. First start with the form, then pick the clay, then determine what result is required and finally how it should be fired and its particular placement in the kiln. Functional as opposed to decorative pieces would dictate where they are placed in the kiln. Although he makes the majority of his income from decorative or aesthetic works, he finds it an interesting challenge from the point of view of a traditional 'American Standard' to obtain usable functional pieces from an anagama.

Although influenced by Paul Chaleff whom he assisted and fired with for 10 years, and many other visits to kilns throughout the US, Chmelar has developed personal theories about woodfiring, flame direction and movement of the flame. He describes the firing process as 100 per cent intuition combined with collective knowledge. The firing is different every time. Although he uses cones and a pyrometer, he is constantly observing the flame, ash and clay and is questioning what is happening inside the kiln. He fires with one half quantity of oak and one half of sugar maple. The oak tends to give yellows and browns, while the sugar maple gives blues and pinks. The oak gives a thicker body of glaze and is harder to melt than the maple which is smooth and thin in appearance. The latter contributes to the fluxing of the natural oak glaze. He mixes and stokes both woods together, firing to cone 10 half down (1315°C / 2399°F) while paying attention to test rings which he draws from various areas of the kiln in order to check on glaze maturation, fire colour and ash melt.

RICH CONTI, WOODSTOCK, NY, particularly appreciates the experience of firing with Pascal Chmelar for the past five years. Prior to that he encountered woodfiring as a BFA student at Alfred University, NY. In 1999 he was the recipient of a New York State Council of the Arts Special Opportunity Stipend to be a resident artist at the Archie Bray Foundation, Helena, MT, where he fired their woodfire 'Coffin' kiln. Subsequently Conti built a soda kiln at the Byrdcliffe Colony, Woodstock, NY, where he is director of the ceramics studio. He intends to build a single chamber catenary arch cross-draught kiln and traded 125 pots for bricks to build the arch.

While Conti's forms are usually utilitarian, he likes the random effects of woodfiring coupled with the challenges of placement, using different shapes, clays and firings. His clays are commercial, particularly studio reclaim mixed with 30 per cent of dry-mixed flint, felspar and kaolins. He finds that his forms hold up well in a six or seven day firing although they are thrown relatively thinly. By tumble-stacking the pots, they have slightly distorted at cone 10 half down (1315°C/2399°F) which adds interest to their functional nature. By using wood, monitoring the fire and making the commitment to be a member of a tightly knit crew – who know and trust their capabilities – Conti feels that there is more connection to the work.

JANE HEROLD, PALISADES, NY, fires a 2 m (6 ft) diameter, round down-draught beehive kiln that has four fireboxes and a tall chimney. "I preheat during the day and start the fires in earnest by around 6 pm, finishing the next evening – about 24 hours all told, not counting the preheat. Three people can do the work, though it is easier with four. I burn hardwood to preheat, and pine for the rest of the firing. The smaller it is split, the easier the job.

"I mix most of my clay though not all, using mostly milled materials. I use local sand as temper in the body. My tendency now is toward a sandier body, less tight and dark than what I've used for many years. By using a not-too-forgiving body I find I recapture the feeling of a beginner at the wheel, really searching and striving for the shapes I want; it keeps me from slipping into slickness or making the pots too thin. I like the clay to have enough character to be felt through the glazes. I want flesh on the bones. I improvise with glazes and measure less and less. Equal parts of felspar, clay and ashes (washed and sieved) makes a nice glaze. I change the character by changing the clay content; 80 per cent local clay and 20 per cent soft-wood ash melts at about cone 10-11.

"I use iron and white slips under the glazes, combing and incising through the slips. For painting on top of the ash/ball clay/felspar glaze, which is a greyish white, I use iron oxide mixed with a little red clay, or a mixture of cobalt toned down with manganese, tin, talc and iron oxide. As much as possible I raw glaze and single fire. Apart from oval dishes which I make on hump molds, all of my pots are thrown on a kick or treadle wheel, with soft clay. Good form has been evolving for thousands of years in the work of artisans all over the world. I'm not ready to throw out all that cumulative knowledge and say: 'I know better'. I hope instead to be a part of that slow evolutionary process, sometimes making something just a little better than the one before it."



Rich Conti stokes Pascal Chmelar's kiln in Palenville, NY. "The pot becomes the sum of the experience of the total process."

Jane Herold in front of her woodburning beehive kiln. She trained with Michael Cardew in the UK.





*Grace Knowlton.
Mixed media
sculpture. Palisades,
NY. Jane Herold's
kiln is in the
background.*

GRACE KNOWLTON, PALISADES, NY, had an anagama kiln built on her property in the mid 1970s and she thought that she would use it often. But in fact, she found it too difficult to load her large ceramic spheres without them breaking. She also had a catenary arch gas-fired car kiln, the car of which wheeled straight into her studio where she rolled the ceramic balls on to the car. This could then be wheeled out of the studio's garage doors straight into the kiln where it could easily be fired. In conversation, Knowlton recalled how the young Peter Callas (then 23 years old and living in the nearby town of Piermont, NY) had approached her and offered to build an anagama kiln

on her property. She thought it would be an interesting idea and she offered to facilitate its construction.

In conversation, the ceramic artist Peter Callas recalled the construction of the kiln. He believes it to be the first natural ash anagama to be constructed in the US. The project was started in 1974-75 but was not operational until 1976. Callas chipped 5000 bricks by hand from an old smelting factory in Sloatsburg, NY, and then took a further three months to transport them by truck to the Knowlton property. He hand-dug all the foundations and constructed a shed over the kiln site. In 1978 Callas approached Peter Voulkos at the Voulkos retrospective exhibition in New York and invited him to woodfire his work in the Palisades anagama kiln. (Callas was then 27 and Voulkos was 54.) From 1979-'86 Voulkos continued to fire his work with Callas at this location, Callas eventually relocating to his present studio and kiln in Belvidere, NJ. In the 23 years of the Callas/Voulkos collaboration Voulkos left the firing of his work in the capable hands of Callas.

In the first firing of the Palisades anagama, Callas fired the kiln on his own for 14 hours. He had no prior experience and there was no one to show him the way. The kiln was subsequently fired for 38 hours. Later, Voulkos' friend, Mitsuo Morioko, visiting from Japan, and aware of the effects which were desired, suggested firing the kiln for a three day period, which they did. From that date forward the kiln was always fired for three days. Callas now fires his Belvidere kiln for seven days. He is grateful for the opportunities extended to him during these formative years, saying: "The Palisades kiln provided a 10-year cycle of highly productive and creative work which stimulated a fervent interest in woodfiring in America."

Knowlton told me that working with clay and personally witnessing the effects of woodfiring shaped her whole approach to art, the collaboration with nature and chance. She welcomed the surprises which woodfiring produced. It had a profound effect on her thinking.

The kiln is no longer fired. It is perhaps an historic relic in the development of American ceramics. One could say that this is one of the kilns where the making of history took place.



TIM ROWAN, STONE RIDGE, NY, has a 7.5 m (23 ft) long kiln with an 6 m (18 ft) high chimney. It is part anagama and part noborigama without a bagwall between the two. It was built in 2000. Although it is based on a combination of the design of many kilns, it is particularly influenced by Ryuichi Kakurezaki's kiln in Bizen, Japan, where he studied from 1992-94. Rowan wanted a range of effects from his kiln. He fires the front chamber to cone 11 (1325°C/2417°F) and the back to cone 6-8 (1230°C/2245°F – 1260°C/2300°F). The latter gives a softer pallet, with a dusting of ash and flame colour. The front has a heavier glaze surface where he uses a shovel to pile up charcoal on the pots during the last two days of an eight-day firing.

Clays are vital to the unique character of Tim Rowan's work. He uses local clays found in southern New Jersey and Pennsylvania which are situated south of the glacial ice sheet which covered much of New York State and the Hudson River Valley during the last ice age. Local clays found in this more northern region tend to be high in iron and more suited for making bricks or earthenware. He blends the found clays with commercial clay bodies or uses them 'as found', without any processing, often leaving the natural stratification of the clay as a solid block prior to forming. The clay is 'open' in body and porous because of the large aggregates of stone and the burn-out of organic material. This gives the textural sculptural quality which he desires. Found clay is not used for tableware.



Top: Tim Rowan's double-chamber anagama kiln. Above: Inside view of kiln.



*Two views of
Jeff Shapiro's kiln.*

*Shapiro approaches each area
of the kiln in a different way.*

*He introduces local reduction
by mounding or covering
various pieces with coals to
increase the spectrum of effects
which come out of the kiln,
saying: "Covering a work
with coals creates a crusty
surface, similar in quality to
barnacles coming out of the
ocean." He suggests the*

following criteria for the

student woodfirer:

"Think about the clay first.

*Give due consideration to
loading." (He dry-runs
loading configurations in his
studio prior to loading the
kiln so that the desired results
are considered even before the
work is placed in the kiln.*

*He sketches the stack and
notes are taken for
future reference.)*

*"Consider the aesthetic over
the technical."*

*As he says, "It's not so
difficult to just melt
ash on clay."*

JEFF SHAPIRO, ACCORD, NY, studied for seven years in Japan. In 1982 he built his first kiln in Accord. In 1996 he took it apart and rebuilt a smaller kiln because the first was too large. The second kiln is 6.5 m (20 ft) long x 2 m (72 in) wide x 1.4 m (55 in) high. He wanted to fire more often, sometimes three to four times a year so that he could concentrate on the widest spectrum of work. In other words, he wanted to see more frequent results.

This anagama or tunnel kiln has a wide opening at the front, the same dimensions as its width, which facilitates easier loading of the work. The first kiln had a narrower door and a more traditional rounded front, which he had to enlarge out of necessity because of an injured back. Although a noborigama is more consistent and easier to fire, he wanted the more dramatic effects that an anagama kiln can give, while acknowledging a higher risk in the percentage of loss of work from the kiln. For him, woodfiring is a life-style commitment. One has to have the land, resources of wood and life-process in order to fire and support a wood kiln. "It is like farming, living cyclically from season to season," he says.

The kiln is fired for 7-8 days, using 6-7 cords of ash which he acquires from a local baseball bat manufacturing company, already cut up into 1 m (40 in) lengths. About 10 per cent of pine is also used in side stoking during the firing. Shapiro concentrates his own work in the front of the kiln, renting out the back third to other potters and students.

By using a wide selection of clay bodies he is able to produce the widest spectrum of results from several firings.

Recently he has been exploring this dynamic in the production of tiles set into an architectural grid. He is now thinking more about diversity, large works, mixed media and different firing processes, such as the small wood, ash, salt fast-fire kiln which he has just constructed. The clay which he uses is a mix of commercial clay bodies, such as Laguna B mix, and clay from a depleted clay deposit in Southern New Jersey. He had purchased 30 tons of this material which consisted of approximately four tons of pure clay and 25 tons of rubble, but then realised that it was this material, both stones and organic matter, which gave the clay its indigenous character. Although there is always a balance in ceramics between the technical and the aesthetic, it is the aesthetic concerns which are of major interest to him.



TONY MOORE, COLD SPRING, NY. Relatively new to woodfiring (six years), I have made art from the time I was in high school in England in 1964 where I first studied ceramics. After a Master's degree at Yale in sculpture, I went to live and work in New York for 25 years, half of which time was spent making sculpture and the remainder painting. In the midst of this I was collecting pots, stimulated by my friendship with the English potter Erick Stockl. In the mid-1980s I had experimented with slab-building at Rutgers University, NJ, at the invitation of Bob Cooke, head of the ceramics department. I later befriended the New York potter, Ragnar Naess and at his invitation used his advanced class at the 92nd St. Y in New York for the exploration and development of my own work. Subsequently I met Pascal Chmelar there and participated in firing his anagama kiln in Palenville, NY. I was quickly invigorated by the dynamics of the woodfiring process. At that firing I stoked the kiln with Rich Conti, which in turn led to a ceramic residency in 1997 at Byrdcliffe, a program which he directs in Woodstock, NY.

I have now built my own 6 m (18 ft) woodfire kiln. It was designed by Kenton Baker and Beverly Fisher of Lancaster, Pennsylvania, in consultation with my needs. These were that the kiln be flexible, could accommodate larger sculptural work and also be large enough to support communal firings, but not so large that it would require lengthy production periods to fill. I wanted to be able to use it myself or with others because it is the community of ideas and the camaraderie of spirit which I find rewarding in this process.

Like other ceramic artists before me, I researched kilns and talked with those who built and fired them. I also assisted in firing them. Eventually, it was decided to construct an innovative hybrid single-chamber catenary arch no-borigama with a 2.5 m (8 ft) long firebox with a step-down grate on the front end. The kiln can theoretically be fired as one or two separate kilns: either just the firebox chamber, the catenary arch chamber or the two together. I use Roger Baumann's T-1 toothy sculpture clay body from Amherst Pottery, MA, for sculptural forms which are wheel-thrown and carved. With access to a clay mixer, I intend to experiment with indigenous clays.

Since I have become involved in the poetic science of woodfired ceramics, I have become a champion of that which I seek. I thank my friends and colleagues in this endeavour, and for the opportunity to think more about the work which we produce.

Left: Tony Moore's double chamber catenary arch cross-draught kiln. The long firebox has a step-down grate with air inlets under each step. Side stoke ports and spyholes for looking at the cones are built into each side. Right: Tony Moore stoking the firebox of Jasper Brinton's kiln.



The anagama kiln built by Peter Callas for Grace Knowlton, Palisades, NY. Jane Herold's beehive kiln is situated behind. Wood is split ready for the next firing.

Every ceramic artist is indebted to those who have come before them, and to the free exchange of information. Every woodfire kiln is unique although there are similarities in design and construction. It is the intention of those who fire them, the kind of clay which is used, the pattern of stacking in the kiln, the wood and the firing process which make all the difference. I note that both Paul Chaleff's and Pascal Chmelar's anagama kilns have a teardrop shape in the front, followed by a different form in the back. In Chaleff's a tube shape, in Chmelar's a constricted and small opened-up chamber which he describes as a 'tail'. They describe the functioning of the teardrop in different terms – for Chmelar it produces a lofting, slow flame followed by a fast-flashing flame, while Chaleff describes his as dynamic fly-ash effects followed by soft charcoal effects. To quote Jeff Shapiro's words, "The subtleties are where it gets interesting."

The ceramic artists in the exhibition *Passionate Fire: Wood-fired Ceramics from the Hudson Valley* who feature in this article have been instrumental in my own journey, explorations and development in the world of fire and clay. I have found in them a camaraderie of the spirit, a bravery, a singlemindedness against huge odds, an almost heroic endeavour to do and to make. Whether functional objects or sculptural in intent, the works in this exhibition provided an overview of the splendid diversity of form and exploration in woodfired ceramics today.

Tony Moore was one of the artists as well as guest curator for the exhibition *Passionate Fire: Wood-fired Ceramics from the Hudson Valley*. Also included were Roger Baumann, Paul Chaleff, Pascal Chmelar, Rich Conti, Jane Herold, Grace Knowlton, Tim Rowan and Jeff Shapiro. The exhibition was held at the Germaine Keller Gallery, Garrison, NY, USA. Nov–Dec, 2002. He will also curate *Passionate Fire II*, in October–December, 2003.