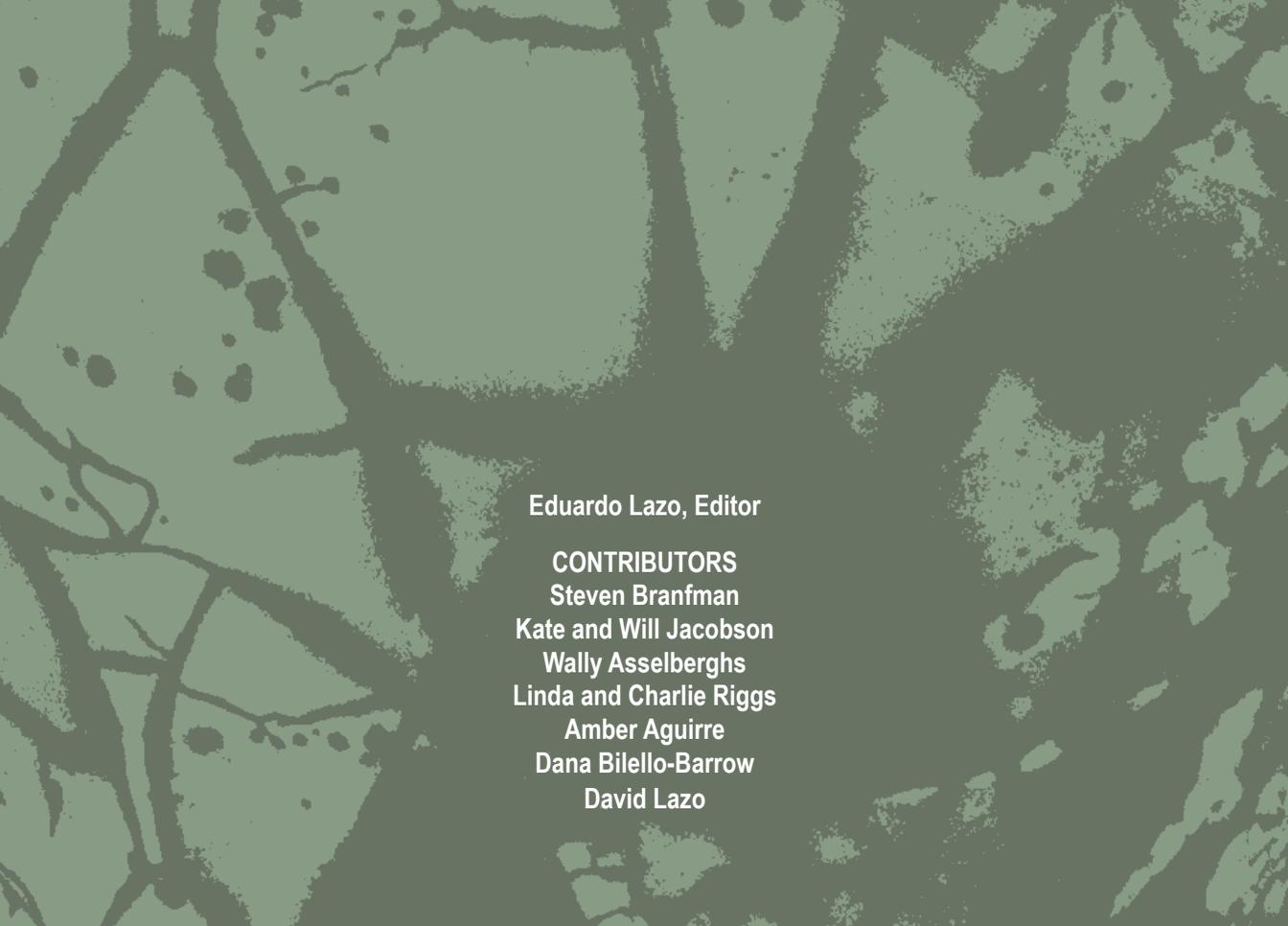




# Naked Raku and Related Bare Clay Techniques



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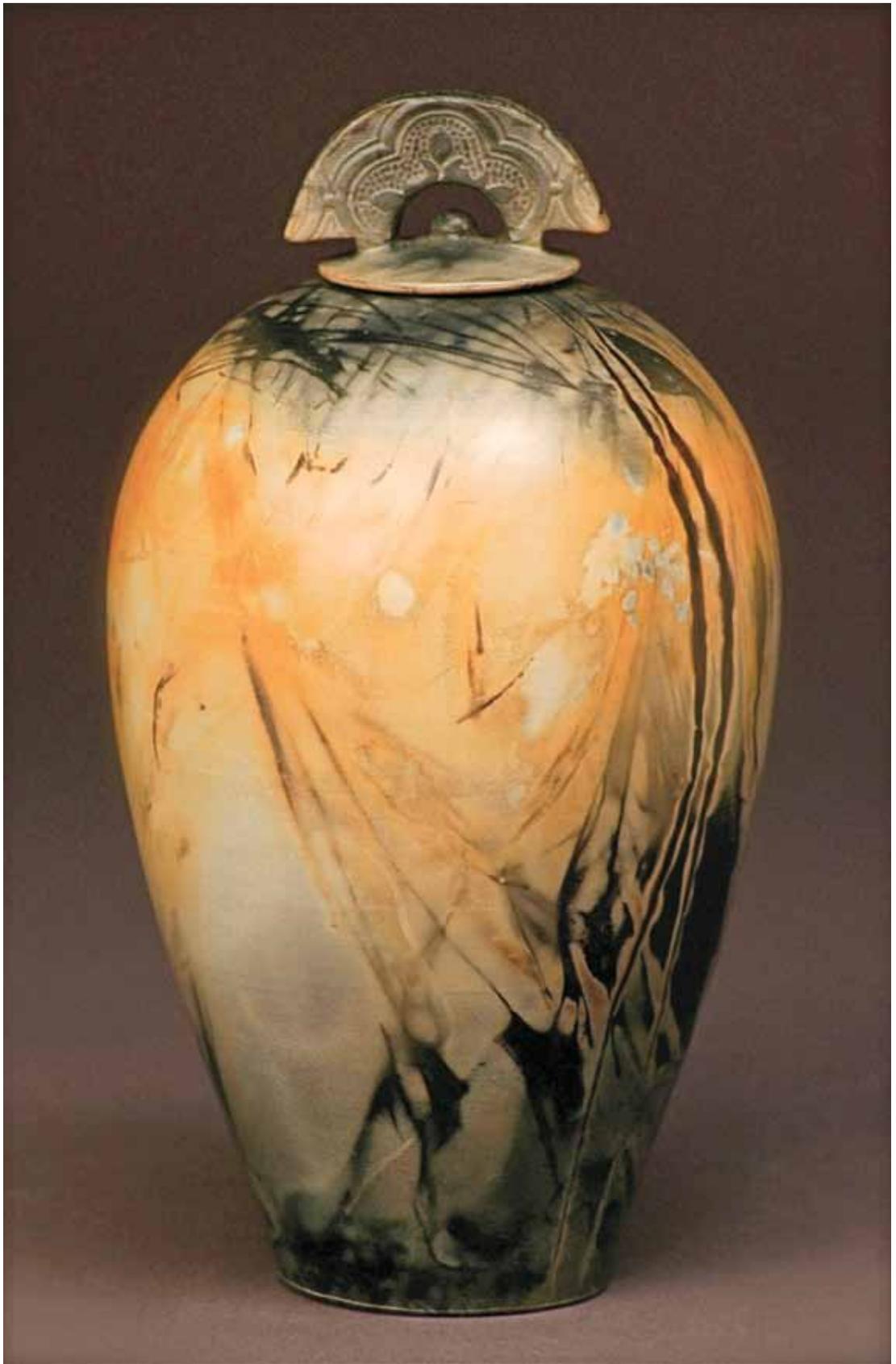
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# In Pursuit of Perfect Imperfection

*By Eduardo Lazo*

In working with clay, there is always an element of the unexpected. This introduction explores unforeseen creative events and examines ways to promote their development, capturing the ‘happy accident’—highlighting imperfections. We examine artistic philosophies, creative guidelines, strategies, tactics and influences that form the foundation for the pursuit of perfect imperfection.

Naked raku began as a happy accident, an imperfection, if you will, that has matured into a true art form. Naked raku was not invented by any one potter; rather, it was a technique discovered worldwide by several artists, almost simultaneously—a happy accident whose time had come (see Chapter 2 for historical background). So, how do we encourage happy accidents? Let us explore this further.



Vessel, two-step naked raku, by Eduardo Lazo, ht: 10 in. Photo by David Lazo.

Lidded vessel, saggar fired earthenware,  
by Judy Blake, ht: 7½ in.

## **Creative Guidelines—Appropriated Concepts**

Our passion is, indeed, clay. Our secret legacies reside in the people whose lives are filled with love for artistic expression. Here are four guidelines from highly respected artists whose advice has withstood the test of time.

### ***Michelangelo***

***The true work of art is but a shadow of divine perfection.<sup>1</sup>***

Perfection is a state of being without flaws, of being complete. C.D.Allen reminds us that if we were flawless or complete, we would be unable to progress or change.<sup>2</sup> Nature is constantly changing, it is perfectly imperfect. As artists we must experience some form of change to keep creating work that reflects and exhibits our increased knowledge, understanding, appreciation and beauty. Thus, we do not seek perfection in our art but rather, that meaning and expression found through the pursuit of perfect imperfection.

### ***Paul Soldner***

***In the spirit of raku, there is the necessity to embrace the element of surprise. There can be no fear of losing what was once planned and there must be an urge to grow along with the discovery of the unknown. In the spirit of raku: make no demands, expect nothing, follow no absolute plan, be secure in change, learn to accept another solution and, finally, prefer to gamble on your own intuition. Raku offers us deep understandings of those qualities in pottery which are of a more spiritual nature, of pots by men willing to create objects that have meaning as well as function.<sup>3</sup>***

Form, decoration, firing, and post-firing treatments often come together to bring life to a piece in unexpected ways. Are we willing to ‘let go’ and let the many elements set in motion take effect naturally? Can we accept and enjoy “what is” rather than “what should have been”?

### ***Ralph Bacerra***

***I am not making any statements—social, political, conceptual, or even intellectual. There is no meaning or metaphor. I am committed more to the idea of pure beauty. When it is finished, the piece should be like an ornament, exquisitely beautiful.<sup>4,5</sup>***

Ralph Bacerra made enduring work designed to be enjoyed rather than analyzed. His work is extremely complex on many levels.

When looking at the intellectual aspects of creating clay art, the methods used by most clay artists can be divided into three types:

***Left brain dominant***, where form, decorative and firing processes are planned out in minute detail prior to execution. This is often seen in narrative, landscape and stylized art.

***Right brain dominant***, where art just happens without conscious thought. The artist sits with a blank but quiet mind and just begins, letting the spirit of the moment evolve from within as it manifests in clay. The artist rides the emotional waves of creativity. This is seen in abstract art.

***Combination***, where creative elements are planned in sequence and executed letting each step flow on its own. This is frequently seen in Raku fired ceramics.

### ***M. C. Richards***

***You are not centering the clay. You are centering yourself.***<sup>6</sup>

Claywork changes the artist as the art object is made. Our dialog with clay is a means of self-realization, and Richards reminds us to utilize intuition to transform emotions into clay art. We create first from the heart and soul; the mind and hands follow. As a way of life, ceramics can provide for many of our basic needs as described by Abraham Maslow: self actualization, esteem, love and belonging, safety and security, as well as physiological needs.<sup>7</sup>

## **THREE CREATIVE STRATEGIES**

Here are supportive yet flexible strategies that help us achieve our goal.

### **1. Elevate the ordinary object to a resounding presence.**

Give your art a voice. Infuse the clay object with ‘stage presence’; that is, make it so intriguing that it immediately captures the viewer’s emotions, imagination, curiosity, and appreciation. This is a connection that transcends time. How do you do this? The answer is: focus on what lies within. The viewer should experience more than the mere impressive force of the outward shape and surface of the art object. There needs to be an emotional impact. What is important is what would remain should the pot or sculpture be broken or destroyed; that being what you infused of yourself into the art object.

You can look to modern and postmodern art for many illustrations of ‘presence’. The work of ceramic artist Adrian Saxe is exemplary in oozing “presence”<sup>8,9</sup>. I further like the words of New York Times art critic Michael Kimmelman: “Be alert to the senses. Elevate the ordinary. Art is about a heightened state of awareness.”<sup>10</sup>

## **2. Merge the old and the new and offer a distinct vision of the contemporary.**

The use of appropriation in art is historically abundant.<sup>11</sup> Do not be shy about 'borrowing' from others. Appropriation is, indeed, the principal manifestation of postmodern art.<sup>12</sup>

## **3. Celebrate and embrace unforeseen events.**

Honor the unexpected and underscore nature's 'flaws' as part of the creative process. Look for and delight in the occurrence of happy accidents. Find value in events and results that are beyond our immediate control.

For many centuries in the Greco-Roman western tradition of art, perfection was the desirable goal. That which made art less than perfect was considered as imperfect and undesirable. Consequently, there were many disillusioned artists having to deal with the imperfect in their quest for perfection and beauty.

The concept of beauty has changed throughout the history of western art.<sup>13</sup> We have all heard that "beauty is in the eye of the beholder." Today, in the post-postmodern world that I call the 'Neo-eclectic' period, I would say that it is the creative artist who determines the art object's beauty.

The Asian/Eastern traditions of art as well as much aboriginal or 'native' art acknowledge imperfections as nature's way. Take advantage of those imperfections in your clay work. Open a whole new world, style, technique, or direction for your work.

## **SEVEN TACTICS OF CREATIVITY**

A tactic is the action taken to complete a strategy. A strategy is an idea of how a goal should be achieved. Here are action steps that I constantly take.

### **1. Live in the moment**

Have you ever tried to duplicate a happy accident in ceramics? It can be a rather challenging exercise requiring many experiments that often do not reproduce the desired result. Some variables may escape you. However, inventiveness can be the result. Observe the phenomenon carefully and look beyond the accident. Such living in the moment can open many additional vistas. I often refer to techniques borrowed from jazz, classical music, literature and the dramatic arts—improvisation and variation on a theme. It is fun to improvise in and around the elements of an accident as a theme for future development.



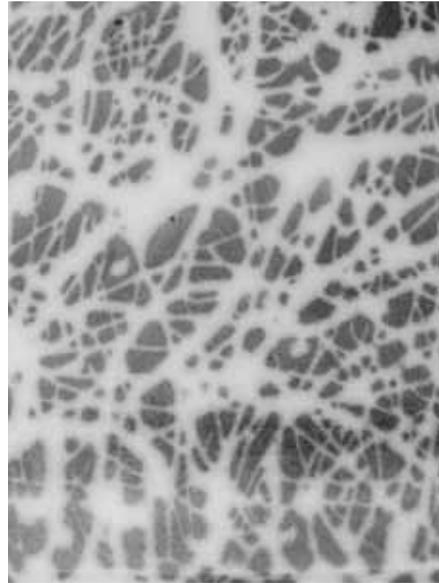
Bottle, naked raku splatter technique, by Eduardo Lazo, ht: 9 in. Photo by David Lazo.

## **2. Right or left brain first?**

The artistic mind differs in its approach. Once you have mastered the basics of your craft (the left brain), art evolves from the intuitive right brain, the spirit, and the heart. In my observation most students take about ten years to master their craft. During that time I suggest working ideas in a series of at least twenty variations on a theme, utilizing improvisation and allowing explorations to evolve in new directions.

### 3. Look for inspiration or new ideas

Just look around at your local environment and circumstances for starters. Remember the basic lesson from drawing class: Do not just 'look' but 'see'. Carefully and deliberately take note of what is truly there before you, and not in your imagination or memory banks of what you think is there. Utilize all your senses and you will discern unforeseen, new, and exciting outcomes. Additionally, scan your personal memories and experiences for inspiration. No two people have the exact same history, knowledge or exposures. Yours are unique for all time. Take advantage of that.



Naked raku syringe technique, close up.

### 4. Know your art history

It helps to know where we have been artistically. I do not just mean the visual arts but also the performing arts and architecture. There is much to learn from the paths that our artistic ancestors have taken. Learn from their discoveries,



One of a series of naked raku boxes by Eduardo Lazo, length 6 in. Photo by David Lazo

traditions and innovations. Then, make them your own. Keep an open heart and an active mind. You cannot 'make' art. Just let it happen as an expression of you. Explore the past. Enjoy the present.

### **5. Record your ideas**

Carry a sketch pad, notebook and/or digital camera to record meaningful ideas as they present themselves. One never knows where or when inspirational insights or factual elements will appear. If you do not record them, you will surely lose them with time. Periodically, read your idea book and sort out the ideas that have the most significance to your present work. Do not throw out the less meaningful ideas. These will germinate in your subconscious and eventually blossom.

### **6. Cultivate a think-tank**

Gather a select small group of creative thinkers around you (not all artist types). Exchange ideas regularly from time to time without judgment or prejudice. Serve as catalysts for each other's creative efforts.

### **7. Keep current**

Visit galleries and other artists every month to get a feel for contemporary artistic expressions. Be aware of cycles in contemporary music, theater and literature.



*The Endless Line* (form inspired by Anne Currier), naked raku, length 9 in. Photo by David Lazo



Aluminum foil saggar technique borrowed from Mike Flatt, ht: 13 in. Photo by David Lazo

## The Zen Influence

No one lives nor works in a vacuum. We all have many influences; some just happen, others are chosen. Many years ago, I took a class in the arts of Zen that emphasized the importance of the spiritual. The textbook was *Zen and the Fine Arts* by Shin'ichi Hisamatsu where he carefully and thoughtfully explained the seven characteristics common to all Zen art.<sup>14</sup> These continue to be fundamental to my approach to ceramics and life.

## SEVEN CHARACTERISTICS COMMON OF ZEN ART

### 1. Asymmetry (Fukinsei)

No rule

Irregular, uneven, unbalanced, informal, odd numbers

Freedom from formal form, negation of perfection

### 2. Simplicity (Kanso)

No complexity

Sparse, not cluttered, boundless, unrestrained

Unity of no form and no color. One = nothingness

### 3. Austere Sublimity (Kodo)

No rank

Advanced in years and life, astringent, sublime

Sabi = ancient, graceful. Wabi = poverty surpassing riches

### 4. Naturalness (Shizen)

No mind

Not artificial, nothing forced, unstrained

No conscious effort in creating, self without form

### 5. Subtle Profundity (Yugan)

No bottom

Deep reserve, endless reverberation beyond expression

Content is present more by implication than elaborate delineation. What is not seen is often more important than what is seen

### 6. Freedom from Attachment (Datsuzoku)

No hindrance

Unrestricted freedom from any rules, habits, conventions, customs or formulas

Unattached to things

### 7. Tranquility (Seijaku)

No stirring

Quiet, calm, full of composure

Being at rest amidst motion

Look to elevate the spirit and fulfill the heart in your work. Seek perfect imperfection. Rejoice in the Happy Accident.

## References

1. Michelangelo Quotes, [www.brainyquote.com](http://www.brainyquote.com)
2. C.D.Allen *Observation of Perfection*, Aug/Sept. 2001. <http://clasfaculty.ucdenver.edu/callen/me/musings/perfection.html>
3. Soldner Biography. [http://www.paulsoldner.com/man/man\\_main.html](http://www.paulsoldner.com/man/man_main.html)
4. Remembering Ralph Bacerra. The "O" Observed. <http://theoobserved.blogspot.com/2008/06/remembering-ralph-bacerra.html>
5. Ralph Bacerra, Frank Lloyd Gallery, [http://www.franklloyd.com/dynamic/artist\\_bio.asp?ArtistID=1](http://www.franklloyd.com/dynamic/artist_bio.asp?ArtistID=1)
6. Richards, Mary Caroline, *Centering in Pottery: Poetry and the Person*, 1964, Wesleyan University Press, Middletown Connecticut.
7. Maslow's hierarchy of needs. Wikipedia. [http://en.wikipedia.org/wiki/Maslow%27s\\_hierarchy\\_of\\_needs](http://en.wikipedia.org/wiki/Maslow%27s_hierarchy_of_needs)
8. Adrian Saxe, UCLA Department of Art <http://www.art.ucla.edu/faculty/saxe.html>
9. Adrian Saxe, Frank Lloyd Gallery, <http://www.franklloyd.com/dynamic/artist.asp?ArtistID=25>
10. Michael Kimmelman, *The Accidental Masterpiece: On the Art of Life and Vice Versa*; New York: Penguin, 2005. Summary notes. <http://www.personal.kent.edu/~jdrake3/JeffreyWattles/Aesthetics/Aesthetics15.html>
11. Appropriation (art). Wikipedia [http://en.wikipedia.org/wiki/Appropriation\\_\(art\)](http://en.wikipedia.org/wiki/Appropriation_(art))
12. Janson, H.W. and Janson, A.E., *History of Art, The Western Tradition*, 6th ed., 2004, Pearson Prentice Hall, Upper Saddle River, NJ.
13. Danto, Arthur C., *The Abuse Of Beauty—Aesthetics and the Concept of Art*, 2004, Open Court Carus Publishing.
14. Hisamatsu, Shin'ichi, *Zen and the Fine Arts*, 1971, Kodansha International Harper & Row, New York.



# Background

*By Eduardo Lazo*

The term 'naked raku' as used in this book, refers to a specialized technique of carbon stenciling. A smooth clay surface is prepared using refined terra sigillata in the bone dry stage, or by burnishing in the leather-hard and/or bone dry stage. The piece is bisque fired anywhere between Orton cone 010 to 08. These lower bisque temperatures preserve the shine of the terra sigillata or burnished surface. Alternatively, a marble-like exterior surface can be attained by finely grinding the bisque fired clay from 60 to 400 grit. These pieces can be bisque fired as high as Orton cone 04 since the shine of this surface is not affected by heat.

A clay slip alone (one-step naked raku) or a clay slip plus a low-fire glaze (two-step naked raku) are applied to the clay surface forming an eggshell coat. Various masking and sgraffito techniques are used for decorative effects. The piece is fired; the temperature depends on whether it is one- or two-step technique. A controlled post-firing reduction allows carbon to enter the cracks



Two-step naked raku double-walled vessel with terra sigillata, by Eduardo Lazo, ht: 12 in. Photo by David Lazo.

*Planet*, saggar fired earthenware by Philippe Buraud, dia: 16 in.

in the clay slip or the crackle of the glaze and imprint a smoke pattern onto the pot's surface. This eggshell is peeled off, leaving an unglazed decorated surface.

This book brings together the ideas and techniques of currently recognized leaders in naked raku and other selected bare clay techniques. It serves as a primer for those who are new to the techniques and as a valuable resource for the experienced clay artist.

Complete details of forming and firing are presented in chapters that follow. First the basics of production are reviewed, and then the expert contributors describe the step-by-step instructions. Additionally, we will review related unglazed contemporary techniques that require the same surface preparation and low-temperature bisque. These include the use of ferric chloride (saggars, horsehair and fuming techniques), clay saggars, and pit and barrel fired ware. We will also review a high fire 'naked fauxku' for your consideration.

### **History of Naked Raku**

To the best of my knowledge, the earliest pioneer of naked raku (and my first introduction) was Jerry Caplan. In 1980 he gave a smokeless raku workshop at the studio of Hanna Lore Hombordy in Ventura, California. His raku reduction stenciling technique was essentially what we call one-step naked raku today. Jerry applied a clay slip on the inside of bisque-fired platters, did a sgraffito decoration, allowed the slip to dry and crack naturally, fired it again and smoked it with one sheet of newspaper within a cardboard box reduction chamber. Sometimes he would add color to the piece in the form of colored slips applied to the bowl's interior prior to bisque firing. For a detailed description of Caplan's methods see Steven Branfman's *Raku, A Practical Approach, 2nd edition* (Krause publications, 2001).

In 1986, Will and Kate Jacobson developed their two-step naked raku technique using slip and glaze. In September 1996, Charlie and Linda Riggs developed their one-step naked raku technique using slip only.

Since then, other ceramic artists (including contributors to this book) independently developed their own versions of carbon stenciling or naked raku techniques. I do want to give credit to those pioneers that fall within my historical experience: Wally Asselberghs (Belgium), Margot Spiegel Kramer (Netherlands), Gordon Hutchens (Canada), David Roberts (England), and Natalie Morris (South Africa, now USA). During the summer of 2006, Dana Bilello-Barrow developed her tape resist raku technique. In May 2009 Amber Aguirre developed high-fire naked fauxku. In March/April 2010 issue of *Pottery Making Illustrated* Hanna Lore Hombordy published an article on what she called fake raku.

## FREQUENTLY ASKED QUESTIONS

### *What are the best clay bodies for making the naked raku pieces?*

Any clay body that withstands the thermal shock of a raku firing works. I prefer high fire stoneware. Here in California, I use Laguna's cone 10 B Mix with grog, Soldate 60, Amador or WSO. Other stoneware bodies as well as porcelain are successfully used as are some low-fire talc bodies (Laguna Miller 10-T). The contributing authors detail their preferred clay bodies in their chapters.

### *Is a smooth surface mandatory?*

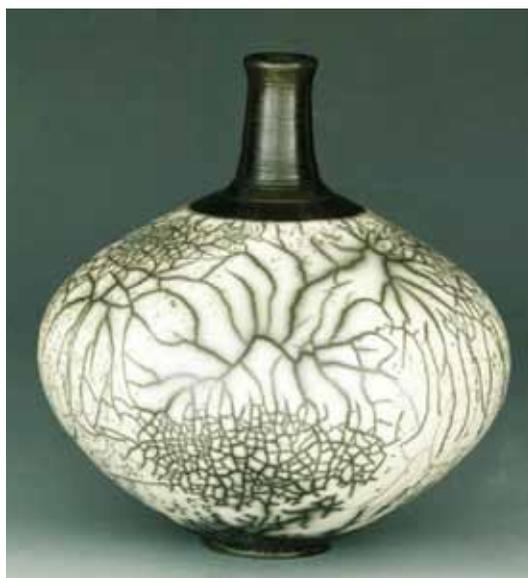
Yes. Terra sigillata, burnished or ground surfaces are best; however, each treatment gives a different visual and tactile result. That is not to say that a rough surface will not work. The challenge with the unpolished surface is in removing the eggshell coat after post reduction since the eggshell tends to stick to the irregularities of the rough clay surface. Soaking a rough surface piece in water for several hours or days sometimes helps in removing the "adhered" eggshell.

Terra sigillata must be applied thinly onto bone dry greenware. If too thick, it can crack and even flake off the surface of the pot. Various recipes for terra sigillata and specifications for application are presented in later chapters of this book. A terra sigillata surface is very fragile and can scratch easily.

Burnishing gives a tougher surface and a deeper shine. If it crackles, the effects are different than that of terra sigillata. Burnished rims are also stronger.

Ground surfaces are my favorite because of the strength of the surface and the very pleasant polished marble feeling to the surface. Applying wax gives this surface a matt sheen.

**Note:** The sand in the clay body does not shrink in the bisque fire and will show on the fired surface, sometimes falling off leaving pockmarks. The remedy for this is to make a slip of the throwing body, sieved to remove the sand. Apply the smooth slip to the piece while it is still in the soft leather-hard stage. The work can then be burnished or covered with terra sigillata.



Two-step naked raku bottle, ground surface, by Eduardo Lazo, ht: 12 in. Photo by David Lazo.

### ***What is the function of the glaze layer?***

The glaze layer in the two-step naked raku technique acts as a resist to the smoke during post-firing reduction. Smoke enters through the crackles that form in the glaze when it air cools on its way to the reduction bin. The primary purpose of the glaze is not to “hold” the slip layer on the pot’s surface; although, it does do that. The glaze layer primarily serves to decorate the pot through natural random crackle patterns that develop on cooling or by intentional sgraffito decorations through the glaze layer.

#### **Modified Jacobson Naked Raku Sacrificial Clear Glaze**

Ferro Frit 3110 . . . . .	65	%
Gerstley Borate. . . . .	35	
	<hr/>	
	100	%

Add: Bentonite . . . . . 2 %

Fire to the “orange peel” stage.

### ***Does any low-fire clear glaze work for the two-step technique?***

Yes. The most popular clear glaze recipe is by Kate and Will Jacobson. I have modified the original recipe by adding bentonite to avoid severe settling of the glaze. The Gerstley borate will cause the glaze to thicken as it stands. Stir gently to restore the consistency (avoid introducing bubbles if you want to minimize black dots on the surface during reduction). I also sometimes use carboxymethyl cellulose (CMC) solution to harden the glaze surface and act as a suspender (in addition to bentonite). Mix 1 teaspoon of CMC powder in 100cc of hot water, let stand for 2 hours, mix well. Add to mixed wet glazes, ¼ cup per gallon of glaze. I use a specific gravity of 1.3 for the freshly made state of this glaze. A second thicker version is made for special effects (splatter or marble) and that should be the consistency of yogurt. Refer to Chapter 5 for details.

Commercial low-fire glazes also work well. The first couple of times you use a new glaze recipe take note of the time and temperature required to develop the desired effects. For example, if you are depending on an orange peel like appearance of the glaze during firing, you must note the target temperature when you clearly see the desired effect. Do not rely on the thermocouple/pyrometer reading alone. Do not forget to hold that temperature and “soak” the ware for about 5 minutes to allow for even heating and the development of the orange peel on the entire surface. There are many published sources of low-fire raku clear glaze recipes., e.g., Gary Ferguson’s self-published *Raku Glazes* (2004). See page 15.

**Clear Crackle – GB/NS/K/S**

Gerstley Borate . . . . .	65 %
Nepheline Syenite . . . . .	20
EPK Kaolin . . . . .	5
Silica . . . . .	10
	<hr/>
	100 %

**Clear – Soldner**

Gerstley Borate . . . . .	80 %
Nepheline Syenite . . . . .	20
	<hr/>
	100 %

Add: Bentonite . . . . . 3 %

Apply in a thick coat

**Clear – GB/NS**

Gerstley Borate . . . . .	70 %
Nepheline Syenite . . . . .	30
	<hr/>
	100 %

Add: Bentonite . . . . . 3 %

**Clear – GB/CS**

Gerstley Borate . . . . .	82 %
Cornwall Stone . . . . .	18
	<hr/>
	100 %

Add: Bentonite . . . . . 3 %

**Clear – GB/CS/BC**

Gerstley Borate . . . . .	82 %
Cornwall Stone . . . . .	9
Ball Clay . . . . .	9
	<hr/>
	100 %

**Clear – GB/T**

Gerstley Borate . . . . .	70 %
Talc . . . . .	30
	<hr/>
	100 %

Add: Bentonite . . . . . 3 %

**Clear – Pb**

Gerstley Borate . . . . .	67 %
Ferro Frit 3403 . . . . .	8
Nepheline Syenite . . . . .	17
Kaolin . . . . .	8
	<hr/>
	100 %

**Clear**

Gerstley Borate . . . . .	50 %
EPK Kaolin . . . . .	33
Silica . . . . .	17
	<hr/>
	100 %

Add: Bentonite . . . . . 3 %

**Clear Crackle – 3110**

Gerstley Borate . . . . .	40 %
Ferro Frit 3110 . . . . .	40
Nepheline Syenite . . . . .	20
	<hr/>
	100 %

Add: EPK Kaolin . . . . . 8 %

**Clear - FF3110**

Ferro Frit 3110 . . . . .	100 %
Add: Tin Oxide . . . . .	3 %
Bentonite . . . . .	3 %

**Clear - FF3110/Nepsy**

Ferro Frit 3110 . . . . .	75 %
Nepheline Syemite . . . . .	25
	<hr/>
	100 %

Add: Bentonite . . . . . 2 %

**Clear - FF3110 Frit**

Ferro Frit 3110 . . . . .	85 %
Kaolin . . . . .	15
	<hr/>
	100 %

Add: Bentonite . . . . . 2 %

***Are there different recipes for the slip used in the one- and two-step techniques?***

Yes. Take note and do not confuse the two. The clay slip recipe for the one-step technique is very different than that used for the two-step techniques. The one-step recipe is in Chapter 6. The two-step is detailed in Chapters 4 and 5.

***What causes the black dots in naked raku?***

Authorities differ, but the consensus narrows to four factors:

- Dust on the surface of the bisque
- Poor burnishing technique that leaves pockmarks on the surface
- Unsieved grog or sand in the barrier slip (therefore, if you wish to avoid dots, sieve your separation slip to 200 mesh)
- Air bubbles in the slip and/or glaze.

***Can you refire a piece if the result is undesirable?***

Yes, just re-bisque the piece to a temperature above 1200°F (649°C) and hold for 20 minutes. The goal is to get rid of the smoke marks from the previous reduction process and any wax on the surface of the work.

***What are the best temperatures (cones) for the bisque fire in these techniques?***

To preserve the burnish or terra sigillata shine, fire to Orton cone 010 or 08. For more durable ware, you can fire as high as Orton cone 04. At higher bisque temperatures the shine becomes more satin. Pieces you intend to grind (sand) can be fired up to Orton cone 04, although you get darker smoking patterns at lower temperatures.

***Can you add color to this work?***

Colored engobes on soft leather-hard ware can be used prior to burnishing at the hard leather-hard stage. Adding stains and oxides to terra sigillata works well but ball mill for 12 hours prior to use. Ferric chloride can be used to color the clay prior to firing and post-firing. Diluted acrylic paints or inks can be used post firing. See Kate Jacobson's painting technique in Chapter 4 details.

***Is a hydrometer a "must have" item?***

No, but it sure helps with consistent results in your work and in teaching others. The viscosity of the two-step slip is very important. If it is too thin, it will not act as an effective separation barrier (keeping the glaze off the surface of the pot) and it will be difficult or impossible to remove the fired eggshell



Two-step naked raku wedge with colored engobe (inspired by Anne Currier), by Eduardo Lazo, ht: 9 in. Photo by David Lazo.

slip/glaze layer. If the slip is too thick, it will flake off leaving bare surface patches that will accept smoke and turn black. I prefer a specific gravity of 1.3 for most two-step naked raku applications using a hydrometer. For working with different viscosities see the descriptions in Chapter 5.

The viscosity of the one-step technique as described by Charlie Riggs is like that of a very thick mud. This thickness is difficult to measure with a conventional hydrometer. So, I have devised (from necessity) a homemade version of a hydrometer. This consists of a 24 ounce Mason canning jar (or a recycled spaghetti sauce jar) partially filled with water. Once I have a slurry consistency that works well, I add water to the Mason jar and let the partially



One-step naked raku bottle, by Eduardo Lazo, ht: 10 in. Photo by David Lazo.

filled jar submerge into the slurry. To calibrate I adjust the water so it meets the same level as the plane of the slurry. I mark the spot on the jar. For my one-step recipe use, this is the 12 ounce mark. So, I fill the jar with 12 ounces of water and place it (without the jar cap) into the slip bucket until the top surface of the slip meets (matches) the 12 ounce water level.

The slip is now “just right” and I have a reference tool for future personal

use and for teaching students. This takes the guess work out of obtaining the proper consistency for the slurry. This is important because this one step slip is very sensitive to viscosity.

### ***When do you apply the glaze layer in the two-step technique?***

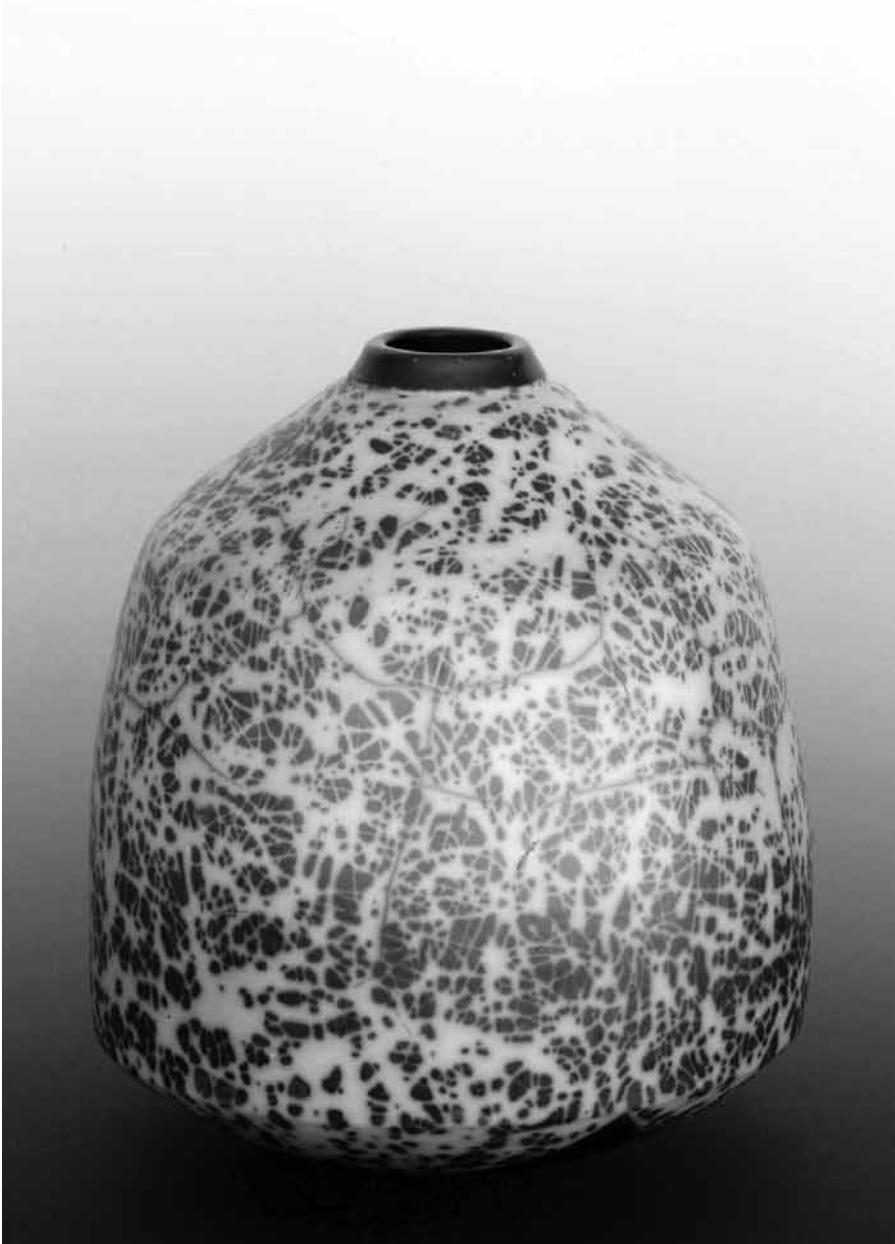
The two-step barrier slip must be relatively dry before applying the covering glaze layer. Note the subtle color change and loss of sheen as the glaze dries. The “dried” slip should not stick to the finger when touched. The glaze does not have to be applied immediately. You can wait as long as you want, provided that the ware is protected from dust. I usually wait about 15 minutes for the glaze to lose its shiny appearance before applying the glaze. Some artists prefer to wait several hours or even overnight before applying the glaze.

### ***How long do you wait before you fire the one- and the two-step techniques?***

For the one-step technique, Charlie Riggs puts the “wet” piece in the kiln right after applying the slurry slip. I do the same. See Chapter 6 for details.

For the two-step technique, it is best to have the slip and glazed piece completely dry before firing to avoid “pops.” See Chapters 4 and 5. It is best to air dry the piece overnight or at least for several hours. You can also dry the piece in an oven, with a warm setting hair dryer, or on top of a hot kiln. Additionally, the piece can dry inside a hot kiln if the temperature is below 400°F or 204°C (place the piece on a cold soft brick, close the kiln, and soak for 10 minutes before you light the kiln).

Background



Two-step splatter naked raku bottle with colored terra sig (inspired by David Roberts),  
by Eduardo Lazo, ht: 12 in. Photo by David Lazo.



the surface. Sand will frequently fall off the piece upon cooling, leaving a pockmark on the otherwise smooth surface. To prevent this from happening, use a smooth (200 mesh sieved) slip on the surface prior to applying terra sigillata or burnishing. I like to make the slip from the same clay body to ensure proper fit. Here in California, I prefer to use a cone 10 stoneware such as Laguna B-mix with grog (not sand). I also use Laguna Soldate 60 and/or Laguna Amador or WSO clay bodies. Experiment with your own local stoneware bodies to make sure that they will hold a burnish or fit well with your terra sigillata and withstand the rigors of the raku firing process. Your clay supplier will be able to assist you in selecting the appropriate clay.

I have been successful using porcelain and porcelain-like clay bodies in construction of work. On initial use, some experimentation is needed during the firing cycle. To prevent cracking, you must take extreme care to avoid abrupt temperature variations and the thermal shock effects inherent in the raku firing and cooling cycles.

Low-fire clays with talc must be used with care to maintain porosity and not reach maturity during the raku firing to allow for decorative smoke to enter the body.

Paper clay works well but here, too, you do have to deal with pockmarks left by the burnt out paper fibers. To circumvent the probable defects with sand



Bottle, one-step naked raku technique, by Eduardo Lazo, ht: 14 in. Photo by David Lazo.

or paper fibers, I like to use a thick layer of covering slip (made of 200 mesh sieved slip from the same body as the paper clay or sand bearing clay) to finish the form. This added slip layer can then be burnished or covered with terra sigillata. I do not recommend grinding or sanding this slip covering layer as a form of gaining a smooth surface as you would just be taking it off, exposing the clay body's surface.

You can also make and use colored slips or clay when creating forms by adding stains or coloring oxides. In making colored slips, gradually add

Mason ceramic stains to 200 mesh sieved slip made from the clay body and mix it in a kitchen blender till you see the color value that you want. Ball mill the colored slip for 24 hours before use.

When using ceramic chemicals such as cobalt carbonate or copper carbonate, I make test tiles of different percentages of the chemicals beforehand. Each ceramic chemical has its own optimum concentration for a desired color. For example, I do not use more than 1% cobalt carbonate or more than 10% of copper carbonate. Refer to standard ceramic glaze books or articles for additional coloring details

By drying out colored EPK kaolin slips on plaster slabs, I produce leather hard pieces that can be rolled into coils of different diameters to serve as colored pencils or chalks when bone dry. If the chalks are left in the soft leather hard stage, they can be used as color clay additives in the decorative process.

Some chemicals, such as ferric chloride, can be sprayed or painted onto the clay piece at the leather hard, bisque or post raku firing stages to add color to the clay body. See chapter 10 for more ferric chloride effects.

### Initial Surface Treatment

Not that it is all about surface, but in naked raku the clay surface is very important. Given that the sacrificial slip and/or glaze must be easily removed post firing, it is best to prepare a smooth surface. Forms that present ample surface “show off” the naked raku patterns best. You can leave a rough exterior but it requires more work to remove the eggshell coating and get an acceptable surface.

Since the clay body is not matured in the firing process, pieces are strictly decorative in function. Because of the inherent final porosity, pieces are not touted to be waterproof or food safe, even when sealed. They should also not be subjected to the heat of an open flame or oven. Exposure to the elements is not recommended. Keep finished pieces in the shade of indoor structures.



Bottle, two-step naked raku technique, by Eduardo Lazo, ht: 12 in. Photo by David Lazo.