Ceramic tableware for everyday utility

Pamela Delyannis

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A Thesis Submitted to the Faculty of
The College of Imaging Arts and Sciences
In Candidacy for the Degree of
MASTERS OF FINE ARTS

CERAMIC TABLEWARE FOR EVERYDAY UTILITY

By
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March 23, 1995
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Date: May 23, 1995
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INTRODUCTION

The challenge of this project was to develop a personal style that achieved the criteria set forth in my thesis statement. It was my intention to make forms that expressed aesthetic qualities of vitality and beauty, with physical durability and comfort. I focused my attention on making practical, utilitarian pottery that is characterized by indomitable spirit. This exploration expanded and synthesized my technical skill and philosophical understanding.

The methods I used to achieve this objective was to incorporate wheel-thrown stoneware with earth-toned reduction glazes. Additional serving pieces and tableware with other glaze combinations were displayed on pedestals within the same area. The final critique consisted of a luncheon served to my thesis committee. The food consisted of traditional Greek cuisine. The purpose of this type of critique was to demonstrate that the work was functional and complemented the food served.
The decision to make a dinner set for my thesis project marks my full-circle return to a serious interest in utilitarian ware. Sixteen years ago, my introduction to ceramics began with the desire to make pottery on the wheel. While this interest always remained, it became overshadowed in college. Students were discouraged from making pottery for their B.F.A. projects because the B.F.A. committee did not consider this type of work suitable. Pottery was not being seriously explored by any students in my class. This was probably because the trend of the 1980’s was to make clay “ART”. This became apparent to me not only in college, but in the ceramic magazines as well. It is obvious that this trend has created a shortage of college educated, utilitarian-oriented potters.

This became even more apparent to me while working on a project with Professor Hirsch called “Ceramics of the 1990’s”. Renowned utilitarian potters were difficult to find, while vessel makers and sculptors of a high caliber were numerous. I noticed this also with my ceramic classmates at R.I.T. There was little serious interest in pottery making. It was difficult to talk about pots during critiques, and I, too, had little understanding of the issues and language of this type of work. When I visited craft shows, I was usually disappointed in the quality and lack of imagination displayed in the functional work.

Creating work with an understanding of ceramic history has been essential to my development as an artist/potter. This exposure has continued to be a vast and rich resource for my ideals. In essence, working on this thesis project has revealed how much I have been influenced by the ceramics of ancient China, Korea, and Japan, and especially the Japanese potter Shoji Hamada. In addition, the modern ceramics movement in the United States, specifically the Alfred school, has had great impact on
my style and approach to working. Additional influences have been the work of American potters Karen Karnes and Otto and Vivika Heino. The common thread that links my influences together is that each artist has used high-fired glaze stoneware as their vehicle of expression.

The Song Dynasty is considered by some to be the height of development in Chinese Ceramics. The qualities of the work from this period which I find most exciting is the interaction between the quiet, simple forms and the lush, seductive glazed surfaces. These two aspects describe a harmony between the form and the surface. The ware in general possesses powerful presence because the pieces are devoid of unnecessary details; they have been pared down to include only the most basic elements. The characteristics of the Song Dynasty Ware are diametrically opposed to the highly decorative examples from the Ming Dynasty.

Korean ceramics from the Koryu period, which corresponds to the Song Dynasty in China, possess some beautiful examples in pottery. Many are typically carved or impressed with intricate floral designs. "A celadon glaze was used to enhance these designs because the glaze would pool in the recesses." (Rhodes 1959, 20) Even with a high level of refinement, Koryu Ware is visually more earthy in nature than the Song Dynasty examples. They also possess a physical weightiness which adds to their overall hearty character. Remarkably, similar work is still being produced today.

Japan also has a long ceramic history. For me, it is the work of the twentieth century potter Shoji Hamada that exemplifies the best in Japanese ceramics. Visually, Hamada's forms are delicate but confident. The most exciting aspect is how the glazes bring the pieces to life. His use of traditional glazes and brush work are applied simply, but demonstrate forceful elegance. It is the interaction of this glaze application that I find to be the most exciting quality. Hamada believed in the simple
life of traditional craftsmen. His main pursuit was to make “honest” pots that were characteristically Japanese in style. His association with Bernard Leach has had a great impact on British and American ceramics.

This notion of 

\textit{craftsman as a lifestyle choice} was an important element in the philosophy of the Alfred School. Charles Binns, the founder of the Alfred movement, was a true pioneer of American Ceramics. He was strongly influenced by the ideals of Chinese ceramics, and he believed the “the simple forms of Ch’ing Dynasty Ware, the depth and character of glaze, and the attention to craftsmanship had enormous appeal” (Levin, 25). His work inspired an interest in high-fired stoneware in America in the early 1900’s. This was truly a new approach from the concept of the guild tradition, which shared the responsibilities of the production of pottery. This notion that a traditional craftsman’s life, as a way of being, is believed to have roots in the principles of Zen Buddhism.

My personal influences are from my first experiences working with clay. The 1970’s was a time when high-fired stoneware was at the height of its popularity. My first ceramics teacher, Mikhail Zakin, taught at a small crafts school in New Jersey. She was closely associated with Karen Karnes. I met Karen on several occasions and was in awe of her. I quickly learned to respect her work and her pioneer spirit. She has always remained an underlying influence for me.

The work of Otto and Vivika Heino later inspired me to really explore the depth and variety of stoneware glazes. I first was exposed to their work at an exhibition in the mid 1980’s. There were many fine examples of stoneware vessels that used a combination of traditional stoneware glazes. This was also the first time that I had seen examples of the brilliant iron red glaze that I chose to use for my thesis dinner set.

The pursuit of making simple, direct work, void of unnecessary details, that are
classic in form, has remained my main orientation. While Karen Karnes has been principally interested in form, and considered glaze as secondary, I, on the other hand, came to love the complexity and beauty of reduction-fired stoneware glazes. The color development, depth of surface, and uncertainty of fired results has kept my interest. I am always thinking about what I will do in the next firing experiment. The durability and physical strength of reduction-fired stoneware is undeniable. Daniel Rhodes, in his book Stoneware and Porcelain, refers to this type of ware; "This close relationship between body and glaze, both in substance and appearance, which characterizes high-fired ware, gives a feeling of unity, rightness, and suitability about the surface that is difficult to achieve in earthenware (Rhodes, 74). In addition, firing this type of ware involves active participation from beginning to end. Tending to the firing, interpreting the amount of back pressure and reduction in the kiln makes me feel more a part of the process; it is exciting and fun.

The reason why I chose to use established glaze recipes for this project was because in using them, my work became a subtle part of their long-standing, culturally rich tradition. Although the glazes were used to suit my needs and desires, they still are alive with history between the East and West.

Making utilitarian ware has come quite naturally to me. This is because of my interest in creating a beautiful domestic environment. I have always enjoyed using hand-made objects, especially those intended for use in the kitchen. Creating a warm and unique environment with hand-made tableware is in direct contrast to the impersonal mass-produced ware that most of us use.

These are the reasons that have motivated me to work in this vein. The desire to make work that is cohesive, concise, and well-crafted was my intention from the onset. In addition, I felt a sense of carrying along the pottery tradition, and to hopefully motivate others to pursue an interest in functional ware. Becoming a student at
“School for American Crafts” has been important to me. Known for its historical precedence, the school has a reputation for excellence. It has been a place where fine craft work is taken seriously. It was my hope that my finished project would in fact be representative of the name “School for American Crafts”.
The process of developing this dinner set began with making the clay; two hundred pounds of buff stoneware. It was important to let it age for a couple of weeks so that it would be workable. During this time I finished the thesis proposal and began to think about what would characterize an indomitable spirit in the work. On the onset this meant strong, earthy forms that possessed a presence and a physical durability through exploring rounded forms with rich earth-toned glazed surfaces.

I began by improving the pottery shapes that I had made previously to create forms that make a strong stylistic statement. The notion of formulating utilitarian ware to fit a concept was a totally new experience for me. For the first time, I was thinking about function in a serious manner. There was an entire language of formal analysis that was about to unfold before me.

The making process began with choosing one form, the bowl, and then developing the character of the set around it. The first bowls I make were very round with thick lips. They had prominent throw rings, and they were all medium in size. I mixed up several glaze tests and applied them to small test bowls. The medium size bowls were glazed with stoneware glazes I had already mixed up and had used for other firings. I initially thought that an iron red glaze would be the most appropriate choice for the set, but the red color was difficult to achieve. Also I did not want to limit my options to other glaze color choices. Testing glazes from the many sheets of formulas I had collected over time was an exciting undertaking.

This first series of work was loaded into the twelve foot downdraft kiln and then fired. Unfortunately, the results were disappointing. Although I had simplified the design elements of the ware, they were too quiet and ordinary. The iron red glazes
were too dark (brown) and muddy. Some of the glaze tests did show promise, such as an oatmeal tan glaze with a mottled surface. During the first class critique I showed this work, and it was clear that it was far from reaching my intentions. But the conversations of the students and teachers did confirm that the qualities I had hoped to achieve were appropriate qualities to develop in the work.

The next body of work became more defined. In thinking about the possible ways to change the shape of the bowl, the idea of adding a rim became a promising direction. The addition of a rim would form the edge, and also added the opportunity to apply a contrasting glaze color. I thought that the rim also added tension and a sense of strength to the bowl. The shape of the bowls were becoming less round and more angular, with a fairly small foot.

I then began working on the other components of the set, plates, cups, and saucers. The proportions and size of the pieces began to take issue. It remained important that the pieces in the place settings be functional for many situations. I wanted the plates to be substantial. They would be deep and somewhat bowl shaped, so that they would be able to comfortably contain the food. I began to weigh out the clay specifically for the plates, cups, and bowls. They were measured with a ruler from the wet stage, then at the final fired state in order to keep the set consistent.

During this time, I had an important discussion with Professor Pamela Blum. She expressed the idea that the individual pieces in each group of forms be viewed as families of forms. For example: each cup was quite similar, but not exactly the same as the other. This was intuitively how I thought pottery work should be, but she put it into words. This view has been expressed by other potters as well. Michael Cardew states, “People have been looking for that element of LIFE in things they use--something they can't find in ordinary stores.” (Cardew 1978, 45). On this subject Karen Karnes said:
Each person has to know his own limit. If some potters get real pleasure in making twelve dozen, if they can keep their souls alive and their interest fresh by making that kind of volume, than that's all right for them. That is not, however, my way. I have to deal with each piece on the wheel as an individual expression (Karnes 1977, 16).

Acquiring the ability to make pots that all look exactly alike might be considered a skill to an inexperienced eye, but actually it is a means to produce lifeless work. It takes insight to know when to step back and approach each piece of clay as individual, while still creating a family of forms.

This second firing was done in the sixteen foot updraft Alpine kiln. I chose this kiln to work with because it was the largest kiln available to do high fire reduction in. It also could be used to do bisque firings. Previously, I had much experience and success in firing these types of kilns, so I felt comfortable with the special challenges that they present in firing. There were successes and failures in this firing. The top of the kiln reduced more than the bottom, and while this is typical for an updraft kiln, the results were too contrasted because the iron reds were both red and brown in this firing. The main problem with the firing was that the kiln fired too quickly. I realized that I needed to lengthen the time between when cone eight and cone nine went down. One of the problems with the glazes were that they had pinholes. Either the glaze did not have enough time to “heal over”, or the pinholes could be a result of too much reduction. I believe that it was not having enough time in the top temperatures because this problem occurred in both the lightly and heavily reduced ware.

During the critique for this kiln load, Professor Richard Hirsch and I compared the results. There was definite improvement on the whole. We discussed some issues on form, colors, and ways of viewing the work. One thought that became very enlightening was expressed by Bernard Leach, “The ends of lines are important; the
middles take care of themselves” (Leach 1940, 23). This critique had such an impact because, as Professor Hirsch stated, “The rim and the foot are essential elements.” I had never realized this, but indeed, it is true. The suggestion was made that it would be advantageous if I came up with more than one glaze combination that expressed similar ideas, but with slightly different feeling.

This next series of work became more defined. The design elements were that the forms were rounded, yet angular. The plates and bowls had a medium sized rim, and the cup a turned out rim and pulled handles. The plates and bowls had a spiral design in the clay that worked its way from the center outwards and faded to rings to the rim. The reason for the spiral was to add a decorative element to the work that would not interfere both visually or functionally with the presence of food.

I went through making the bowls, plates, and cups for the next firing. Although I continued to do several glaze tests, not many of them showed promise. It was mostly my old stand-by glazes that took an active part in the decisions that I made. I did find a cream glaze that had a beautiful surface, called ‘Shaner Butter’. It was a safe bet. The oatmeal glaze test that I had previously tested did not come out the same ever again. One other glaze that I battled with was a green matte glaze that sometimes has a crystalline appearance.

This next firing was better because I had decided to turn the kiln shelves so that they were laying from front to back rather than side by side. I thought that the shelves needed this positioning to create better circulation inside the kiln, since the dampers were positioned in the same direction. Firing the kiln remained a constant battle.

The critique of this body of work was right before the holiday break. I had some definite decisions to make because I knew that it was time to decide what colors the main set of tableware would be. Although the Shaner Butter glaze was dependable, I felt that the iron red glaze, ‘Ohata Kakki’, was more appropriate in expressing this
notion of indomitable spirit. To me, the red represents blood, earth, and life. Still, I was getting a variety of shades in this glaze from the kiln, but I wanted to take a chance with it. The next problem that I had to deal with was my application of the contrasting glaze color. The way that I was applying the color was sloppy, and fired the same way. Professor Robert Schmitz said that he would show me a way to apply the glaze so that it would have a clean, neat line. This would be a demonstration when we came back from the break.

By the beginning of January, I began to make a constant supply of work. Professor Schmitz showed me how to apply my contrasting glaze color to the rim by securing the bisqued and partially glazed piece on my trimming bat. Then, using a baby ear syringe and a glaze-filled brush, I applied the glaze and squeezed the syringe as the wheel spun. This had a marvelous effect, creating a clearly defined area of glaze.

I had so much fired pottery at this point, that I decided to give most of it away to allow more room for me to work. I stacked it on a table in the studio, and let my fellow classmates take what they wanted. What was so positive about this was that they used the plates, bowls, and cups. It was from them that I got the best feed-back on how the work functioned.

By this time, I had established a work rhythm. I always made my clay at least two weeks ahead of time. When I began making the work, the first week was concerned with throwing and trimming the ware. I began with the smallest form, the cup, and worked my way to the larger pieces, plates and serving pieces. For the place settings, I generally worked in a series of eight to twelve. The second week I bisqued and mixed the glazes. The third week I glazed and then fired. The fourth week I assessed the finished work and made decisions on how to approach the next body of work.
With each kiln load, there was improvement. The attitude became that each load of work was working up to the final set of work. I made final decisions about base glazes and the accent colors.

One month before the thesis project was due to go to exhibition, I began the final stretch of the project. I made twenty place settings of ware. I did not want to take any chances with possible breakage or poor firing results. I fired the basic red with black rim in two kiln loads. I fired the other glaze combinations in the eight foot downdraft kiln because these glazes, Shaner Butter with green glaze and a celadon with shiny black, fired better with a heavy reduction, unlike the red which needed a light reduction to achieve the desired results.

There was great concern about the variety of shades in the finished work with the main set. The red went from a red to a rich brown, but I accepted the results, and realized that the variety in shades made for an interesting appearance. The real challenge came with the installation of the exhibition.
DESCRIPTION OF WORK

The finished work is characterized by a distinct style that evolved over the course of the project. The forms can be generally described as rounded yet angular, and predominantly by a “V” shape. The feet are narrower than the bodies and rims. They are also trimmed to a crisp doughnut shape. The curves of the bodies are accentuated by the indenting of the forms at the start of the rims. The rims are flat and ear-shaped in profile. The lids are peaked and have a small thrown knob on top. They fit down into the forms, resting on their flange. The individual pieces are medium in height, except for the coffee pots, which are tall. The surfaces are smooth, except for the inside areas which have a thrown, raised spiral design which radiates from the center and moves outward, ending in faint throw rings.

The nature of the glazes are muted earth tones. The main set, glazed in iron red with black accents, is a dramatic combination. Close up, the red surface is speckled with orange and brown. The black glaze is shiny, and shows limited depth. The other glaze combinations include a cream colored, semi-gloss glaze (Shaner Butter) that reveals some iron spots from the clay. This glaze also pools slightly in the recesses of the throw rings. The rims are glazed with two colors, a black semi-gloss glaze with a matte rutile green glaze on top. In combination, these glazes produce a stone-like, speckled green surface. Another glaze combination is a green celadon with shiny black accents. The celadon on the buff clay produces a shiny grey-green surface with iron speckles. The rims are glazed in the black, which produces a shiny green, black to brown tenmoku surface. The last combination is a matte green to shiny green glaze that shows crystal clusters in random places. The few pieces that fired with good results were accented with a black semi-gloss glaze that produced a rich, reddish-brown surface.
From the beginning, it was my intention to exhibit the main dinner set, service for four, within a traditional table setting. This would include place mats, glassware, flatware, napkins, and a floral center piece. The reason for this type of setting was to present the work in a manner in which it was intended. The remainder of work, which would show serving pieces and other glaze combinations were later decided to be put on the gallery’s white pedestals. They were placed in the same general area of the gallery as the table setting.

The decision to use my own dining table was made because it was traditional in style and of a similar aesthetic as the dishware. The process of creating an ambience began with finding appropriate place mats. I chose to use place mats because they would suggest the notion of framing each place setting. They would also keep the setting informal in nature. Professor Hirsch and I made several shopping trips to local stores that sold tabletop accessories. I brought along a small box of sample pieces in the glaze combination that I was using in my thesis work. After searching through several stores, I decided on a set of place mats that were a multi-colored abstract design. They were in soft earth tones of greens, peach, brick red, turquoise, and beige. The place mats were also substantial in their construction. It surprised me that they went so well with the dishes because their colors were so muted compared to the glazes that I was using. What this did, however, is dramatize the red and black dishes of the main table setting. They would have been equally appropriate for the other glaze combinations of work that was displayed on the pedestals.

To add height to the overall effect, I bought long-stemmed, bell-shaped wine
glasses. These wine glasses were a similar shape to the coffee cups that I made for the set. The next biggest dilemma I faced was finding suitable flatware. I attempted to borrow a set of hand-crafted stainless and ebony flatware from a local shop, but it became too complicated of a matter to work out. While shopping, I did not find any satisfactory flatware to purchase, so I decided to use what I had at home, silver-plated utensils with a simple floral motif. The problem with the flatware was to be more appropriately resolved closer to my exhibition date.

For the floral arrangement, I went to Arena's, a very nice florist in Rochester. I brought along a low, soft green basket that I thought would go along well with the set-up. The shopkeeper helped me choose the appropriate flowers that were in moss greens and orange-red tones. These flowers included lilies, anemones, freesias, asparagus, ferns, and bare willow stems. The overall arrangement was to be low in height, so that it would not overwhelm the table. I also asked them to make up a smaller arrangement of these same flowers in a tall, thin, glass vase to be placed on one of the pedestals.

On the day that I began setting up, I was still concerned about all the elements coming together. Betsy Merkett, the gallery director, was insightful in suggesting that I use a black tablecloth underneath the table. She thought that it would help unify my work with the other work in the gallery since the table was so different from the other styles of work that were being exhibited in the gallery. I went and bought a large black tablecloth to try her suggestion. Surprisingly, it worked very well. The effect that this black tablecloth had was to transform the dishes from the everyday setting; they took on a more elegant quality. That same day, Professor Max Lenderman from textiles, came by to see what I was working on. He said that he had a set of flatware that would be more appropriate than what I had. The next day he brought in an unusual set of flatware, that was a perfect solution to the problem. The utensils were stainless steel
with black wooden handles, made in Mexico. The steel part was etched with designs and the handle ends were shaped with falcon heads. Professor Lenderman also brought in black napkin rings and two sets of black stemmed wine glasses. Then, as the finishing touch, I went and bought green table napkins.

The next order of business was to set up the other work on the pedestals. This was a matter of arranging the place settings of alternate glaze combinations and the serving pieces for the main dinner set.
The final critique for the thesis project included preparing a meal for my committee and serving it at the table set in the gallery. I arranged a time (1 p.m., Tuesday, May 4, 1993) that was convenient for everyone involved. The gallery was closed for a period of two hours so the meal would not be rushed.

Two fellow graduate students, Jill Oberman and William Thompson, offered to help serve the food. I prepared the food ahead of time at home, and brought it to school. The cuisine that I chose to serve was Greek style Mesa dishes. The Greek food reflected my personal taste and national heritage. The dishes that I chose were Spanakopita (spinach pie in fillo dough), Mousakka (eggplant casserole), and Greek Salad (garden vegetables, olives, feta cheese, and dressing). For dessert we had Strawberry Shortcake (American) and coffee. It was my opinion that this type of meal would be healthy, tasty, and appropriate for the dinnerware.

At the last minute, Professor Schmitz was unable to participate, so I asked another graduate student to sit in; Holly Hoover. The meal was enjoyed by all. In the progress of the meal, the plates, bowls, cups and saucers were put to the test. It was the collective opinion of all that the ware was quite functional, and that the dishes did, in fact, compliment the food served.
CONCLUSION

Working on this project was a very rewarding experience. It has been an important opportunity to explore an area of ceramics that I love, but have long taken for granted. It enabled me to focus and cultivate a whole new approach to making utilitarian ware.

To me, the pottery making process is much more than producing a finished product. Indeed, I feel that it is a spiritual activity, and one that best expresses my creative sensibilities. From the making of the clay to the final firing, it is an activity that enables me to put myself into each step of the process. Opening up a glaze kiln is a quintessential experience. In a large sense, it is a birthing process.

This in depth exploration has helped me to learn and understand the principles of form and surface. It has also helped me to define what I wanted the work to say. Essentially, the work is a statement about who I am; “an indomitable spirit”.

The response that I received from my thesis exhibition was extremely positive and encouraging. I know that much of my success was facilitated by hard work and guidance from my advisors. Growing and learning in an educational environment has made me a true advocate of art education.

Once someone learns the basic skills of throwing, glazing, and firing, there then is an opportunity to develop the work and to express a personal statement. Making coherent work requires insight, understanding of process and historical traditions. This is essentially education. I believe that one of the most essential elements in art education is art history. It makes sense that you need to know where others have been to know where you can go. I came to this realization while working on this paper.

While I was familiar with the works of Daniel Rhodes, Val Cushing, and Robert Turner, I was unaware of the vast impact that they have had on the ceramic traditions in
America.

Presently, the area of utilitarian pottery is being pursued by a small number of ceramics students. Some colleges and university programs have even eliminated this instruction from their curriculum. In light of these facts, it is important to remember that the roots of modern ceramics lie in the history of the useful clay vessel.

The ability to make and fire clay storage vessels has had a revolutionary impact on world wide cultural development. This was one of the very first technologies. It allowed ancient people to safely store food. This in turn led to the further development of agriculture; later to trade and commerce. Pottery has remained important to most cultures. However, our culture today finds little need for hand-crafted utilitarian pottery. Why then would one want to pursue this area of ceramics? One reason is that it is important to preserve this craft because it has such an important history. There is the notion that the potter becomes a part of this tradition. The past speaks to the maker, who then adds their own sensibilities to the work.

Like the potter and history, pottery and food also share an important tradition within many cultures. Recently in America, the esthetic appeal of hand-made dinnerware has gained popularity among chefs and gourmets alike. The current trend holds the belief that the preparation and presentation of food is an art form. Visual appeal is equal to taste sensation. For now, the days of the stark white plate are gone. Fine cuisine, coupled with unique dinnerware and table accessories, set a stage that expresses a very personal statement. Dining becomes an art, in which the participants interact with all of their senses.

These are the principles that have motivated me to develop this body of work. Functionality has gone well beyond the fundamental aspects of usability. In turn, I have gained a greater sense of purpose to my work. Through this experience, I have acquired a desire to further explore these ideas.
**TECHNICAL INFORMATION**

**BUFF STONEWARE CLAY A9**

- 50 lbs. Hawthorne Fire Clay
- 25 lbs. Foundry Hill Creme Stoneware Clay
- 15 lbs. OM-4 Ball Clay
- 5 lbs. Custer Feldspar
- 5 lbs. Flint
- 6 lbs. 48 Mesh Grog

**GLAZES A9**

**OHATA KAKKI (Barbara's Red)**

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<td>11.0</td>
</tr>
<tr>
<td>Zircopax</td>
<td>12.0</td>
</tr>
<tr>
<td>Zinc Oxide</td>
<td>4.0</td>
</tr>
<tr>
<td>Rutile</td>
<td>5.0</td>
</tr>
<tr>
<td>Bentonite</td>
<td>2.0</td>
</tr>
<tr>
<td>Gerstley Borate</td>
<td>24.0</td>
</tr>
<tr>
<td>Dolomite</td>
<td>16.0</td>
</tr>
<tr>
<td>Talc</td>
<td>30.0</td>
</tr>
<tr>
<td>Ball Clay</td>
<td>20.0</td>
</tr>
<tr>
<td>Flint</td>
<td>40.0</td>
</tr>
<tr>
<td>Bentonite</td>
<td>4.0</td>
</tr>
<tr>
<td>Rutile</td>
<td>8.0</td>
</tr>
<tr>
<td>Copper Carbonate</td>
<td>4.0</td>
</tr>
</tbody>
</table>
B-9 GREEN

G-200 Feldspar  45.0 grams
Gerstley Borate  10.0
Talc            10.0
Dolomite       10.0
Whiting        5.0
Zinc Oxide     5.0
Ball Clay      5.0
Flint          30.0
Copper Carbonate 6.0
Tin Oxide      6.0

CELADON

Flint          21.7 grams
Whiting        14.0
EPK            8.0
Custer Feldspar 33.6
Red Iron Oxide  1.3

CLARK'S BLACK

Kona F-4
  Soda Feldspar 22.2 grams
Whiting        6.0
EPK            3.5
Flint          18.5
Red Iron Oxide  4.0
Bentonite      1.5
## TYPICAL A9 FIRING SCHEDULE (FOR THE 16ft³ ALPINE UPDRAFT KILN)

<table>
<thead>
<tr>
<th>TIME</th>
<th>AIR</th>
<th>GAS</th>
<th>TEMP. (F) TOP / BOTTOM</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>overnight</td>
<td></td>
<td></td>
<td></td>
<td>-dampers open 3&quot;</td>
</tr>
<tr>
<td>8:00 am</td>
<td>switch on</td>
<td>0.5</td>
<td>285 / 197</td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>1.0</td>
<td>1.01</td>
<td>984 / 655</td>
<td></td>
</tr>
<tr>
<td>10:00 am</td>
<td>15</td>
<td>1.5</td>
<td>1342 / 1103</td>
<td>-spy holes blocked -dampers open to dissipate flame</td>
</tr>
<tr>
<td>11:00 am</td>
<td>25</td>
<td>2.0</td>
<td>1619 / 1450</td>
<td></td>
</tr>
<tr>
<td>11:15 am</td>
<td>10</td>
<td>2.25</td>
<td>1697 / 1554</td>
<td>-Δ08 down on top -30 min. body reduction</td>
</tr>
<tr>
<td>11:45 am</td>
<td>20</td>
<td>2.25</td>
<td>1631 / 1689</td>
<td>-adjust damper to maintain good back pressure</td>
</tr>
<tr>
<td>12:45 pm</td>
<td>30</td>
<td>2.25</td>
<td>1790 / 1780</td>
<td>-Δ08 down on bottom</td>
</tr>
<tr>
<td>1:15 pm</td>
<td>40</td>
<td>2.75</td>
<td></td>
<td>-lost flames, so increase air and gas</td>
</tr>
<tr>
<td>2:00 pm</td>
<td></td>
<td></td>
<td></td>
<td>-Δ1 down on top and bending on the bottom</td>
</tr>
<tr>
<td>TIME</td>
<td>AIR</td>
<td>GAS</td>
<td>TEMP. (F)</td>
<td>TOP / BOTTOM</td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>-----</td>
<td>-----------</td>
<td>--------------</td>
</tr>
<tr>
<td>3:15 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:00 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:00 pm</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:05 pm</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
LIST OF PLATES

Plate 1..........Exhibition; overall view
Plate 2.........Close-up of the set table
Plate 3.........Serving pieces
Plate 4.........Iron Red and Black place setting
Plate 5.........Shaner Butter and Green place setting
Plate 6.........Celadon and Black place setting
REFERENCE LIST


