8-1-1963

Surface treatment of pottery

Jon B. Curtis

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SURFACE TREATMENT OF POTTERY

The development and evolution of surface treatment, and a personal exploration of surface treatment.

A THESIS

Presented in partial fulfillment for the Degree Master of Fine Arts

By

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Rochester Institute of Technology

School For American Craftsmen

Rochester, New York

August, 1963

Approved By;

Hobart Cowles

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In order to develop a personal style of surface treatment for my work, I believe it is necessary to be aware of the development of surface treatment, the reasons behind it, and to study and practice its techniques. The purpose of this thesis is to provide a disciplined effort in that direction.
INTRODUCTION

A popular theory as to how man developed pottery, states that he may have lined a fibre basket with clay to make it tighter, and this may have, through accident, been dropped in a fire. This would have hardened the clay and a more durable container would have resulted. The clay container would bear the impression of the basket and would have a worked surface in a sense, although this would have only been a result of the forming process. Since we tend to imitate the familiar, when man discovered he could make a pot without a basket mold, he may have tried to make his pots look like his earlier efforts by impressing a pattern into the surface. This reasoning probably was unfamiliar to succeeding generations of potters, but they tried to imitate the familiar too, and attempted to make their pots like their fathers pots. The result was a change in the patterns as a result of individual interpretation.

Most of the ancient pots discovered by archeologists, from most periods of time, have shown surface treatment that was not necessary to the process of forming the pot. There seems to have always been something in a potter that leaves him discontented with an unadorned pot.
There are several reasons why the surface of pots are worked over. Potters have attempted to imitate other materials or processes, painters have used pots as canvases, and pots have been decorated to improve or emphasize form. In addition, to increase utility or to add color, glazes are used.

The imitative process was carried to a very high state by the Chinese, who developed a green glazed ware during the T'ang period which is very difficult to distinguish from the bronzes from which it was modeled. The Japanese potter, Kenzan, made water jars of clay which were imitations of wooden buckets. Josiah Wedgewood devoted great effort to imitating in clay, classical glass vases.

Pots made in imitation of other materials are usually less successful aesthetically than those which are made in a manner more revealing of the material of fabrication.

Much of the surface treatment of pots has been of the nature of pictographic design. When man was able to control the processes of pot making to a sufficient extent, he began to draw abstractions of nature on his pots. The range of such work is very broad, ranging from very simple line drawing to
accurate and detailed paintings. Much of the drawing on pots has had a deep psychological meaning to the creator and the user of the pot. Pottery was for a long time the only fairly permanent means of preserving a drawing and pots served well as canvases for early painters.

The use of surface treatment to minimize a bad element or emphasize a good element of a form, has probably always given potters the best results. The potter attempts to improve the pot, and lets the form hold primary importance. The surface design plays a supporting role to the form.

Today, a new type of potter exists. His ware is not essential to the convenience or the economy of the community. The court no longer supports his production. He has become a bridge between art and industry. He is a sophisticate, a trained artist. He may choose to work in a style of the past, to borrow from the past and to add to it, or to work in a radically different manner aided by modern technology.

My personal preference is to draw from the past and attempt to adapt what I find there to the needs of today and to my personal taste. I believe in the craftsman's approach to pottery-making, as opposed
to that of the artist. My desire to make functional pottery classifies me as a conservative in design, since the use to which such ware is put limits its variations in form.

Working as a craftsman means that a rather large quantity of ware would have to be produced. This would limit the amount of time that could be spent working on each pot. The repetitive production of successful models is necessary. Surface treatment must be kept simple and direct, and should be an attempt to enhance form. My desire for personal expression is fulfilled by designing a functional object of beauty and then cresting that object. I do not have any desire to paint pictures on pots, but believe that through the use of texture, linear geometric designs, and color, I may be able to improve and provide variety to the pottery I will produce.
MATERIALS

The pots made for this thesis will be wheel thrown. A blended stoneware body was used. It is made according to the following formula:

Kentucky Special ball clay 50
XX Saggar clay 50
Fire clay 12.5
Red Art clay 12.5
Dalton clay 12.5
Bentonite 1.5
Red Iron Oxide 1.5
Crushed crude Barnard clay 1.5

This formula gives a good clay for throwing and with a firing range from cone 5 to cone 9. The color is light brown in oxidation and the texture is rather smooth unless a granular fire clay is used. The use of the crushed crude Barnard clay gives some texture, but was done primarily to give spots which might bleed through a glaze. The crushed clay was used as it emerged from the crusher and no attempt was made to grade according to size. The largest particles were less than one-sixteenth inch in diameter. In reduction, the clay becomes a dark red brown color. The bisque firing is carried out at cone 08. The usual firing cycle for an oxidation firing in electric kilns is to fire over about an 18 hour period for bisque, and a 24 hour period for glost. All of the
oxidation firing was done in electric kilns.

The slips used are of differing compositions in order to have a range of colors. They are made according to the following formulas;

**White slip CH3**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Flint</td>
<td>55</td>
</tr>
<tr>
<td>Ball clay</td>
<td>15</td>
</tr>
<tr>
<td>Bainbridge feldspar</td>
<td>10</td>
</tr>
<tr>
<td>Frit 3110</td>
<td>15</td>
</tr>
<tr>
<td>Opax</td>
<td>5</td>
</tr>
<tr>
<td>Bentonite</td>
<td>6.5</td>
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</tbody>
</table>

To make blue slip, 2% of Cobalt oxide is added, for green, 4% of Copper oxide.

**Black slip**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Art clay</td>
<td>50</td>
</tr>
<tr>
<td>Barnard clay</td>
<td>30</td>
</tr>
<tr>
<td>Copper oxide</td>
<td>5</td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>5</td>
</tr>
<tr>
<td>Red Iron oxide</td>
<td>5</td>
</tr>
<tr>
<td>Cobalt oxide</td>
<td>2.5</td>
</tr>
</tbody>
</table>

These slips are all useable on raw or bisque ware. When applied to bisque ware, the absorbent body counteracts any tendency toward peeling by allowing the slip to soak into the pores of the clay. The white slip and its variations are difficult to use on a wet pot, but a few minutes to allow some drying of the pot will cure this problem. The ball clay in the white slip makes it necessary to use only the minimum amount of water when mixing to counteract a tendency.
to settle.

The black slip reacts strongly and will show under all but the most opaque glazes. The white slip tends to be washed under a fluid glaze. The blue and green colors are soft due to the opacifier in the base slip.

The glazes used in this work are all developed from the same base. They are designed to mature in the cone 5-6 range. The considerations involved in deciding to work at this temperature are:

1. Lower firing costs and less failures as compared to cone 9 firing.
2. No expensive glaze materials necessary,
3. The body develops sufficient hardness to give good durability.
4. The aesthetic results are very similar to higher fired ware.

The base glaze was formulated to include as many RO members as was practical with a rather simple batch receipt. The glaze is feldspathic in character, but frits are used instead of natural feldspars. There is no great sensitivity to over or underfiring, except for crazing due to lack of maturity of the body when under-fired. Firing at cone 9 does not
produce excessive fluidity. Application is not critical, and it has proved to be a reliable glaze. By slight additions, an opalescent and a magnesia matt glaze are obtained. It was my intention to develop these glazes so that the minimum amount of raw materials would need to be stocked to produce a variety of glazes.

The formulas of the glazes are as follows:

**Transparent**

<table>
<thead>
<tr>
<th>Frit P-25</th>
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</thead>
<tbody>
<tr>
<td>Frit W-15</td>
<td>17</td>
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<tr>
<td>Petalite</td>
<td>36</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>3</td>
</tr>
<tr>
<td>Kaolin</td>
<td>11</td>
</tr>
<tr>
<td>Flint</td>
<td>23</td>
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</table>

**Opalescent**

<table>
<thead>
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<th>Frit P-25</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frit W-15</td>
<td>12</td>
</tr>
<tr>
<td>Petalite</td>
<td>36</td>
</tr>
<tr>
<td>Kaolin</td>
<td>3</td>
</tr>
<tr>
<td>Flint</td>
<td>22</td>
</tr>
<tr>
<td>Talc</td>
<td>13</td>
</tr>
</tbody>
</table>

**Matt**

<table>
<thead>
<tr>
<th>Frit P-25</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frit W-15</td>
<td>8</td>
</tr>
<tr>
<td>Petalite</td>
<td>29</td>
</tr>
<tr>
<td>Kaolin</td>
<td>18</td>
</tr>
<tr>
<td>Flint</td>
<td>24</td>
</tr>
<tr>
<td>Talc</td>
<td>21</td>
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The opalescent glaze is translucent, milky, blue-white. It shows medium fluidity, but is not difficult to use, if precautions normally followed
with fluid glazes are observed. It should be applied in a medium thickness. Thin applications tend to be transparent, and too thick application will produce opacity. It is somewhat friable due to the low clay content and must be carefully handled in placing in the kiln. The addition of 1% gum arabic to the batch toughens the coating satisfactorily.

This glaze shows texture well, tending to break from sharp edges. Iron bearing slip under the glaze shows a strong brown-blue color. Copper and cobalt bearing slips show subtly due to the similarity of color of the glaze and slip.

The matt glaze has been under development for several months. A soft smooth surface that could be used on table ware was desired. Further requirements were that the glaze would not be critical in application and that it would take colors well.

Barium oxide and Magnesium oxide were both used in an attempt to induce mattness in the base glaze. Magnesia gave the best results and tests were carried out using talc as the MgO source. It has been necessary to make several hundred tests to obtain the desired stability. Originally, the silica content of the base glaze was retained, but this seemed to be responsible for boiling when coloring oxides
were added. In reduction firing, the silica level can be higher, and a good matt reduction glaze was developed in the course of the experiments.

The final result of the testing produced a matt glaze which is smooth in character, opaque when thick, and which will show black slip underneath a thin application.

A line blend of 10 colorants was tested with each glaze. It is my intention to use only the minimum number of different glazes, but the line blend was useful to provide color information for reference.

I believe that these 3 glazes provide a good range and should be able to fill most of the needs of a craftsman potter producing functional ware. All the glazes may be fired in an oxidizing atmosphere in a gas kiln as well as electric kilns. A reduction firing does not harm these glazes.
DECORATIVE METHODS

There are two basic ways in which a pot may be decorated. The clay of the pot may be worked in a decorative manner, or a glaze or slip may be applied over the surface of the pot. Of course there are countless variations possible within each basic technique and they may be combined. The potter who feels he is limited to only a few decorative methods is not very well versed in his craft.

To begin with first things, the basic methods of decoration of the clay body after the shaping of the form, are impressing, applied ornament, and cutting and carving.

Some of the oldest pots discovered by archeologists show impressed design although it is believed to have been a result of the forming process rather than a conscious attempt at decoration. It is believed these early pots were formed inside a woven basket which would account for the pattern on the outside. We make similar textures today by pressing coarse cloth into the clay or by modifying the shape of the pot with beating tools covered with cord.

Impressing is the simplest of decorative methods, only the fingers being needed in the most elemental
form of the technique. Sticks, bisque or plaster stamps, or almost any object may be used. Repeat designs can be made by using a roulette and allowing it to run around the pot as it spins on the wheel. Impressed decoration is direct and very much in keeping with the plasticity of clay. It is done on wet or leather hard clay. Special tools are not necessary, and the ordinary potters' tools may be used to create many different designs using this technique.

The transition from simple coil built pottery to applying a coil to a pot as a decorative technique probably came rather easily. Soft clay may be smeared on a pot or leather hard pieces may be attached with slip. These in turn are often cut or carved. Thick slip may be trailed on in ropes or may be built up in layers as in the pâte sur pâte process. Coarse granular materials may also be pressed into the damp pot in a modification of the applied decoration technique.

There are many examples of applied ornament historically, the method having seen practically universal use. Today, several well-known potters use applied decoration, notable among them, the Schiers of New Hampshire, with whom this method is
almost a trademark. Peter Volkous has occasionally worked in this manner.

Incising is engraving in clay. A tool with some sort of cutting edge is used to make a pattern by removing or pushing the clay aside to make the lines. These lines may be so subtle they are almost invisible, or they may be bold and coarse. The Chinese have created the most notable examples of this technique. They used bamboo graving tools, fine smooth clay bodies, and high-fired celadon iron glazes. The lines they used are very delicate and subtle. Incising is best suited to linear designs.

Excising is the reverse of incising. The design is outlined and the surrounding clay is cut away until the design stands above the rest of the surface. The technique can have a delicate subtle effect, or if the pot is made thickly, it can be used for a bold and vigorous effect by carving away a large amount of clay.

Slip decoration is accomplished by applying a liquified clay to the pot. The slip may be colored with oxides, may be white, or its natural color. Slip may be made from the body clay, or it may be especially compounded to counteract shrinkage.
Slips may be used to make a design by applying them in specific areas with brushes, sponges, rollers, by spraying, trailing with a bulb, pouring, or by dipping. Slip decoration is especially suitable for brushing as the brush works well on the damp pot. Mistakes can be removed easily by scraping or wiping them off. Brushing makes many subtle and beautiful variations. A great variety of brushes may be used.

Pouring of slip over damp pots, or dipping pots into containers of slip are methods well suited for the potter who wishes to work in a quantity production. The range of effects is limited, however.

Slip trailing was done much in the past and many excellent pots were produced utilizing this method of decoration. Cow horns or small clay bottles with a goose quill as a nozzle were used as syringes. Today, most potters use a small rubber syringe. The technique is not unlike a baker decorating a cake. The slip is squeezed onto the damp pot and can be made into quite a variety of designs. The slip must be only thick enough to retard running, and the pot must be as damp as possible. If the slip is too thick, or the pot too dry, difficulty may be experienced with the ropes.
of slip cracking off on drying. The most success will be had with flat shapes, but with care, slip trailing may be done on vertical surfaces.

The application of slips may be controlled by resist techniques. Wax, latex, paper, or other materials that will shed water or may be peeled off, may be used to keep the slip off the desired areas. If paper patterns are used, another slip may be applied after the pattern is removed. Wax or latex may be applied and slip poured over the design. Slip will not adhere to the wax, and the latex pattern is peeled off leaving a reserved design. Paper patterns are made of a soft absorbent paper which is dampened with water so it will stick to the pot. Slip is then carefully brushed or sprayed on the pot and when the slip is dry, the pattern may be peeled off.

The sgraffito technique involves coating the pot all over or in areas, and then scratching a design through the slip to reveal the clay underneath. The design may be linear in character, or large masses of the slip may be cut away. Many variations are possible by using different tools to do the cutting.

Slip may be poured on a flat clay surface and contrasting colors of slip laid on top and the whole
liquid mass combed and puddled to produce an effect of fine lines, or a marbled effect. These methods are restricted to flat bottomed bowls or molded shapes, as the slips must be kept separated until the potter desires to mingle them. Much of the results are accidental, especially in the marbling technique, which involves placing layers of contrasting slip on top of each other and then shaking or jarring the pot to obtain mingling of the colors in an irregular manner.

The old Korean potters went a step beyond simple incising by filling the engraved lines with a slip of contrasting color to that of the body. The technique involves scratching the lines on a leather hard pot, brushing slip over all the lines, and then scraping all slip off the surface of the pot so only the lines are filled. The Japanese name for this technique, Mishima, is the name used by Western potters.

Glaze application methods offer the potter several decorative alternatives. The common methods of glazing, pouring, dipping, and spraying, may each yield some different effects, even though an effort is made to eliminate variation.
Dipping and pouring are the classical methods of glaze application. Some glazes were applied dry, as were the galena glazed English medieval pots, and of course salt-glazed ware is glazed in the kiln, but I believe it is safe to say that most pots have been glazed by one of these two methods.

Dipping is the fastest, most uniform glazing method. The pot is simply dipped into a tub of glaze. If the pot is very large, this may be impractical and pouring is then employed. Depending on what glaze is used, there may be a considerable variation in appearance due to overlapping of one or more thicknesses of glaze. Pouring is best suited for use with a glaze that does not show overlapping to a great extent, unless this is desired from an aesthetic point of view.

Spraying is an application technique born of the machine age. Rather expensive equipment is required and there may be some danger to the potter if he inhales the particles of glaze that may float in the air. Subtle variations of thickness of the glaze coat may be an advantage and also may be a disadvantage as it is difficult to control thickness of the coating after one pass has been made with the spray.
gun. The spray gun is somewhat wasteful of glaze, but can be used with only a small amount of glaze, so it can be more economical at times, too.
RESEARCH RESULTS

The pots made as demonstration pieces were considered to be basic shapes that are common to wheel-thrown pottery. They were cylinders about 4 inches in diameter by 8 inches height, flat bowls 7 to 8 inches in diameter, deep bowls about 5 inches in diameter, and small round bottles about 6 inches in diameter. Several pots of each shape were made so that it was possible to practice a variety of decorative methods on each shape. Several large pots in each of these basic shapes were also made as display pots to show a variety of surface treatments and glazes.

Impressed design was executed with the fingers and with a variety of tools. The best results were obtained with a rather vigorous treatment of the wet clay with the fingers. It is necessary to over-emphasize any mark made in this way as the drying and firing processes tend to make the impressions less obvious. The use of the fingers as tools is very direct and is very quick. The design appears to be a result of the forming process and is very plastic in nature.

When using tools other than the fingers, I felt I had the best results when using the tool against
the spinning pot. Good success was obtained in using slip with the impressing technique. Sometimes, slip was brushed on the pot and then an impressed design was worked over the slip. This removed some of the slip. The method was also reversed and slip painted over an impressed design.

Applied ornament was done on a pot to provide some visual relief in a plain form. It is possible to be very fanciful using this method. In the pot I made, I applied small pads of clay to the damp pot, and then painted the centers of them with slip and then brushed around one of the groups of pads with slip. This sort of treatment is of course not well suited for utility ware, as the encrustations on the surface would present cleaning problems.

Incising is most successful when using my clay and glazes when the technique is done as sgraffito. The coarseness and the color of the clay make fine lines hard to see. The use of an opacifier with the base glaze and bold heavy lines gives much better results.

Excising was rather effective when using the opalescent glaze since there is quite a tendency for
this glaze to break away from sharp edges. Working in this manner seems agonizingly slow to me, and I don't imagine I would use the method but occasionally.

Slip decoration is a favorite with me since the entire job with the exception of glazing may be done on the pot while it is on the wheel and is freshly thrown. I feel that this is the best time to do any decorating since it is most likely to grow along with the pot and not be an afterthought.

With the clear base glaze and 2 or 3 colored slips there is enough variation possible to please most of us. A bit of slip around the rim of a cup or bowl can transform it into a good pot. The eye stops where there is a change of color. The band of slip makes a statement that the pot ends here. The possibilities for decoration with a brush are as varied as the painter's imagination. The use of the brush is a very difficult art, and takes many years to master at even a low level. There are those who will never be brush painters. I don't know where I stand, and it will take some time to determine this.

With the opalescent glaze, paper resist and wax resist with slips make a good combination. The clay
is allowed to show under the resist area and becomes a brown-blue color. This makes an effective contrast with the color of the glaze over the slip.

Sgraffito was quite effective with the black slip. The other slips are low in clay content, and tend to crack when the tool cuts through them. The speed and freedom of this method make it very useful for the drawing of linear designs. Most of my pots were made using a geometric point of departure for the surface design, since this is more familiar and more conducive to good results in first efforts than is a freer approach to design.

Slip trailing is not well suited to the slips used, since they must be used quite thinly. A slip made from the body clay would be more satisfactory as it would be possible to work the slip thicker with less danger of cracking. The use of the bulb was quite successful with glazes, since the dry coat of glaze or a bisque pot tend to literally pull the glaze slip out of the syringe. It is necessary to hold the pot in such a manner that a rather level surface is presented to avoid inviting trouble with the slip running. Simple lines are best, and many poor attempts
will need to be washed off before a sufficient mastery is gained.

The Mishima technique was best suited of the linear methods for producing sharp lines. To a potter who wants to make finely detailed drawings on pots, this method would seem a favorite. My experience working with this method is of course limited, but I felt I had the best results when I used it for simple banding effects or similar work. I have had little training in drawing, and I tend to shy away from drawing. I may be only fearing the unknown, but I feel it is better to make a small simple band on the edge of a pot than to ruin it with an inept drawing.

Most of the pots were glazed by pouring since rather small amounts of glaze were mixed experimentally. With the clear glaze without colorants this method was satisfactory, since lap marks do not show. The opalescent glaze is fluid enough to overcome application defects, too. The matt glaze must be carefully applied as its opacity tends to make lap marks prominent. This may be an advantage for decorative effects but may also be a disadvantage as an uneven coating looks messy in most cases.
Small pieces were dipped and this is indeed the preferred method both from the standpoint of speed and accuracy of results. Spraying could be used to some advantage with the opaque glazes, since the possibility of varying the thickness would be most apparent with these glazes. The possibility of varying the surface texture would be slight, since all the glazes are fluid enough to smooth out and would probably occur only if the spray gun were operating improperly.
CONCLUSIONS

The intent of this thesis was to do all firing in an oxidation atmosphere. The clear and opalescent glazes have given good results, but the matt glaze has left something to be desired when fired in an oxidizing atmosphere. It was possible to obtain the desired smooth, yet matt, surface, but when coloring oxides were added, the glaze became unstable. Corrections were made but usually resulted in the surface becoming shiny. The final formulation is not a dead matt, but is dull enough to reveal forms well.

A chance test of one of the formulations of the matt glaze resulted in an excellent glaze in reduction firing. The glaze has been used on several pots and has shown excellent characteristics. It has a smooth matt surface and shows good body reaction. It will take colors well and has an extremely long firing range for a matt glaze, showing satisfactory results from about cone 6 to cone 9. The best temperature is about cone 7. The development of this glaze was an unforseen result of this work, and is worth the work done on this thesis in itself.

An attempt was made to make each of the designs used with the various methods work together with the
form of the pot. There were of course many failures as should be the case in a learning experience. Many times results which were disappointing to me at first had good qualities pointed out to me by others. It is best, I feel, to reserve judgement on a pot and to keep it around and to look at it a while. Also, it is necessary to look at a pot alone, and to take it out of the pot shop where it is compared with other pots.

I feel that the effort of this thesis has enabled me to grow in the area of design at a faster pace than I would have otherwise. I believe my strength is in three-dimensional design, and it is necessary to also have competence in two-dimensional design in order to make good pots. To enable my abilities in the latter to come closer was one of the primary aims of working in the manner I have chosen. My skills as a potter have of course also advanced, but I believe the desired result has occurred, even though there is still much room for growth in the field of two-dimensional design.

An observation on the use of the brush is in order. This tool, I feel is a deadly weapon to a defenseless pot. We Westerners brazenly pick up a brush and try to do the things done with brushes by Orientals. It looks so easy, but only rarely have Western artists
working in any media been able to really exploit the true spirit of the brush. I believe one must restrain his use of the brush as we are not literally born with a brush in our hands as are the Japanese. Shoji Hamada, the Japanese potter, told me that Bernard Leach, who is highly regarded for his brushwork, has great difficulty in its use. Having watched Hamada do brushwork on pots, I feel that a quick, almost careless approach is most conducive to happy results. In my case, this means that designs are going to be very simple and much practice will be needed to perfect just one design.

My personal tastes are for simple strong forms, glazes that reveal their earthy nature, and simple, direct surfact treatment. My experiments in other ways of working have tended to lead me back in this direction. I prefer to work quickly and to spend a minimum amount of time on each pot. I get more pleasure from seeing a board full of pots that in seeing one pot which has been worked over too much.

My study of surface treatment of pottery has only begun with the completion of this work. I have only touched on the various methods and have mastered none
of them. This was not expected when I undertook to work on this thesis. Through the years work, I have become more aware of the fact I make the best pots and derive the most satisfaction from working in simple, direct ways.

I should like to do some further work on the matt glaze. The limits of time kept me from getting the result I was hoping for. It should be possible to obtain a satisfactory surface without the adverse reaction to coloring oxides that was experienced. I believe that this point was nearly reached, and some slight adjustments would give me the results I had hoped to obtain.
PHOTOGRAPHS

No.  1 Bowl, slip trailed design, glaze colored with iron and tin oxide
2 Cylinder vase, incised pattern, blue slip on sides, clear glaze
3 Bottle vase, applied ornament, slip decoration, clear glaze
4 Bottle vase, white matt glaze, reduction fired
5 Bowl, white matt glaze, reduction fired, brush design with black slip over glaze
6 Bowl, brown and white matt glaze, reduction fired, incised design
7 Bowl, opalescent glaze, Mishima design on outside
8 Bowl, poured slip design, transparent glaze colored with copper oxide
9 Bowl, blue slip, paper resist pattern, opalescent glaze
10 Bottle, excised decoration, opalescent glaze
11 Bottle, matt glaze, poured design
12 Cylinder, poured design, opalescent glaze
13 Cylinder, impressed design, clear glaze
14 Bowl, yellow slip under brushed black slip, transparent glaze
15 Bowl, matt glaze, slip trailed design
16 Bowl, Mishima design, clear glaze
17 Bowl, sgraffito design, clear glaze
18 Bowl, brushed design in black slip, clear glaze
19 Bowl, excised, sgraffito, and painted slip, clear glaze with opacifier
20 Bottle, matt glaze, poured design

21 Bottle, white slip, wax resist, opalescent glaze