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ROCHESTER INSTITUTE OF TECHNOLOGY

A Thesis Submitted to the Faculty of
The College of Fine and Applied Arts
in Candidacy for the Degree of
MASTER OF FINE ARTS

VISUAL SOFTNESS IN CERAMICS

by

Sheldon Lee Rexrode

May 22, 1982

APPROVALS

Advisor: _____

Date: 5. 18. 82

Associate Advisor: _____

Date May 18, 1982

Associate Advisor: _____

Date 5. 18. 82

Graduate Academic
Council
Representative: _____

Date: _____

5/19/82

Dean, College of
Fine & Applied Arts: _____

Date: _____

5/20/82

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THESIS PROPOSAL

I feel that the newly shaped greenware form can possess a soft, malleable and pure quality. I would like this quality to be visually retained in the fired state. I hope to utilize slips in a fashion that enhance the form, and use its tactile qualities to convey a sense of the soft, wet clay.

When slip is applied to the pot, it may be done by brushing, dipping, pouring, trailing and/or hand application. The application of slip, its color and its effect on the glazes, will also be significant in working toward the appearance of a soft form.

Historical and technical information will be researched as to better understand what has and can be done in this area of endeavor.

INTRODUCTION

SOFT (sôft, soft); adj. 1. yielding readily to touch or pressure; easily penetrated, divided, or altered in shape; not hard or stiff. . . . 3. smooth and agreeable to the touch; not rough or coarse. 4. producing agreeable sensations; pleasant. . . . 6. not harsh or unpleasant to the eye; not glaring as light or color. 7. not hard or sharp, as outlines. . . . (2:1147).†

Clay, as it comes from the earth, possesses qualities of softness and plasticity. These qualities become apparent as one manipulates the wet clay. I think the softness and workability of clay surpasses most other mediums and I feel an obligation to convey a sense of the wet clay in the finished work. A visual softness can be achieved through form and/or surface (color, gloss, tactile texture). Although this notion is

†Numbers in parentheses refer to numbered references in Bibliography; those after the colon are page numbers.

paradoxical (because the clay always becomes rigid when fired), my intent is to harmonize the visual softness of form and surface within the realm of functional ceramics.

In this industrial/computer age, I produce forms that can provide a visual and tactile experience to enrich the life of its user. Unlike industry, I am able to explore subtle variations of form and surface. I strive for variations that create a visual softness reminiscent of the wet clay. Hopefully, this "softness" will stimulate interest in the viewer/user. When someone uses a handmade ceramic form that is unique and interesting, it can become a special moment: the object may be experienced in many different ways. Ideally, a person may discover new things each time the object is used.

I choose to wood fire my work because of the nature of the flame and its effects. The wood's flame is a long, heavy one that repeatedly touches clay surfaces. Flame is like water; it will travel in directions of least resistance. The flame continuously works the clay surface in a

directional manner as it carries small particles of wood ash, depositing them on clay surfaces. When fired to 2380°F, the ash will melt into a glaze or it may change the surface of an already glazed form, thus revealing the effects of flame and ash. Wood flame softens the glaze color and gloss. One side of a form may be matt (due to ash deposits), while the other remains glossy. This active flame in wood firing enhances the surfaces, yielding variation, interest and energy. This vitality in the kiln reinforces the energy when making a form on the wheel.

CHAPTER I

HISTORICAL INFLUENCES

Japan offers a wealth of ceramic objects that exemplify the softness of clay seen in its fired state. The Tea Ceremony was introduced from China to Japan at the end of the twelfth century. "This ceremony came from the Zen monasteries of Chekiang, in which the Chien tea bowls from Fukien were popular. It is supposed to have been introduced into Japan by the monk Eisa in 1191" (6:75). Under Zen Buddhism, there occurs a "non-precious" attitude toward clay. Potters welcomed the marks, cracks, and warps that occurred during the making and firing processes. Some results were intentional, others were accidental.

Such wares of Bizen, heavy and rough-hewn, with their attractive, red-burning surface and partial brown glazing, or the splendidly battered wares of Iga and coarse-grained Shigaraki, embodied well this ideal of primitive dignity and austerity, as did the simple rice bowls of the Korean countryside; and their chance defects were painstakingly cultivated as virtues (3:66-67).

The "Six Old Kilns" are of particular interest. During the Kamakura Period (1185-1338), the work from these six kilns flourished. Three of them will be discussed: Bizen, Shigaraki, and Iga.

Bizen ware has a softness and energy of surface. Many Bizen pieces appear harsh and angular because of their shape. However, when one looks at their surface, the energetic throwing marks reveal a softness of the clay before it was fired. These wood fired forms possess a life of marks made by the potter, some intentional and some not. The energy of the fire becomes evident as color flashing occurs and natural glazes have melted. This vitality, of the potter and the kiln, are "frozen" during the cooling process. Refer to Plate 1 for an example of softness of surface.

"Early Shigaraki wares were strongly influenced by Bizen wares and it has been suggested that potters came from there to Shigaraki" (6:116). Shigaraki forms are not as angular as Bizen, but these rounded forms possess a volumetric energy. This energy is seen when a pot is considered to have an inner structure with an outer "skin" of clay overtop. It is almost as if

the Shigaraki jar is taking a deep breath of air. This generosity of form emerges warm and sensitive. Refer to Plate 2 for an example of softness of form.

Iga ware (from a "branch-kiln" of Shigaraki) reveals the qualities of the wet clay through the potter's processes of making and firing. Softness can be seen in both surface and form. Warping, throwing marks, and cracks from the stress during the firing are all common characteristics of Iga ware and this is usually an "acquired taste" by other cultures.

Purposely the shape was twisted to give pleasure to the teamasters. Amateurs may think they are poorly shaped. The truth is that a so-called artist wracked his brains to obtain such a shape. Thus the Iga potters were strongly influenced by the teamasters (6:120).

The eastern aesthetic reveled in these occurrences and did not discourage the imperfections. Iga ware became treasured and were passed down from generation to generation.

Korean ceramics of the Yi Dynasty (1392-1910), offer another type of softness through

their serene forms. Confucianism was the dominating factor behind this serenity.

Buddhism has always been intimately linked with art. But Confucianism, being less a religion than an ethical code for human relationships vis-à-vis the state, was unconcerned with art and often tended to frown on beauty for its own sake. This Confucian tendency was carried to extremes in Korea during the Yi Dynasty. Except for a few sects, such as Zen, Buddhism in China was characterized by elaborate, often resplendent liturgy and the accompaniment of the fine arts. By comparison, Confucian rites were simple and austere, chiefly centered on ancestor worship (1:38).

Thus, Korean potters produced wares for everyday use and were not indulgent in aesthetic pursuits. Beauty is simplicity. Their straightforward approach created pure, humble forms as seen in their tea bowls. Many times, it is this unpretentiousness that enables the nature of the soft clay to emerge.

Medieval Englishware, produced during the 13th to 15th centuries, is yet another source in my search. The surfaces of these unglazed jugs and pitchers present throwing marks, incising, and thumbled bases. "Thumbled bases serve a functional consideration, preventing the vessel from rocking

when set down. Less common during the 14th century, the thumbled bases become purely decorative, until the end of the Medieval Period" (7:13). Most Medieval Englishware lacks refinement, but are not lacking in character. "English jugs and pitchers were made chiefly for humble uses. . ." (7:9).

The Japanese, Korean, and Medieval English potters were concerned with pottery as a utilitarian vessel. This attitude, between art and everyday life, is a major concern of most functional potters--regardless of cultural differences. This is how utilitarian pottery links cultures. As we study the ceramic objects of other cultures, we may gain a better understanding of our own culture and its values.



PLATE 1

Tamba Vase
softness/surface

from: Ceramics
of Asia by Toki
Zenshi



PLATE 2

Shigaraki Jar
softness/form

from: Shigaraki
by L.A. Cort

CHAPTER II

CONTEMPORARY AMERICAN INFLUENCES

Japanese, Korean, and English potters (as discussed in Chapter 1) had a common interest. They were all concerned with the clay as a soft material, whether as a conscious effort or not. This visual softness is evident in their finished work. There are contemporary ceramicists that reflect these same attitudes: Bob Turner, Ken Ferguson, and Chris Gustin. Whatever their intent, these peoples' work convey the characteristics of the material: its plasticity, workability, and softness.

Bob Turner's current ceramic works are not made for utilitarian purposes; rather they are a visual statement about the clay vessel. He manipulates the forms while the clay is soft and immobilizes that softness and energy when it is fired. Surface interest is created through stamped designs and added clay pieces. Turner's matt glazes are opaque, yielding little surface depth, hence it is smooth, homogeneous, and soft.

Turner's forms are massive and generous. They appear to be under stress (a softness) due to their own weight, as if the forms are shifting. They are also under a stress of push and pull. The inside is pushing out while the outside is being pulled in. This is a softness of inner volume versus outer forces.

Ken Ferguson's baskets and jars appear nonchalant. Ferguson's relaxed attitude is like that seen in Bizen ware. His handles are unpolished. They are directly attached and are not smoothed over, expressing the moment of making. This momentary effect is permanently captured when his pieces are fired. Ferguson simply pours his glazes over his forms, contouring their shape in a seemingly natural way. Clay is left exposed between poured-glazed areas, adding contrast. Glazing and surface treatment are harmonious with the vitality of forming on the wheel. Most of Ferguson's work is wood fired, adding to this vitality.

In Ferguson's work, there is a gesture of relaxation. A softness is achieved through a human awkwardness. In Turner's work, there is a softness of manipulation. The clay wall becomes distorted (inside and out) under forces of stress.

Chris Gustin, a former student of Turner and Ferguson, has a similar sensitivity of softness in form and surface. Gustin seems to regard the clay as a liquid rather than a solid medium. His energetic throwing remains in the finished piece. He re-wets the pot after trimming, rubbing with both hands as it turns on the wheel. This accomplishes three things: 1) rubs the heavily grogged clay back into a smoother surface, 2) rounds off any harsh edges, creating a softer image, 3) revitalizes the clay back into a wetter, workable state. Gustin's work is not thin or fragile; it is thick and soft.

CHAPTER III

VISUAL CHARACTERISTICS - "SOFTNESS"

After analyzing past and current examples of softness in ceramics, two questions remain: 1) What visual characteristics create a soft, energetic form? and 2) Can I achieve this sense of vitality and softness in my own work? Philip Rawson's book, Ceramics, offers some answers.

According to Rawson, there are two polarities of ceramic tradition: 1) the qualities of clay for what it is--a variety of mud, 2) a remote association with the earth (i.e. porcelain in a glossy, refined state) (8:12-13).

Clay may take on many appearances and there is no particularly "natural" way for a ceramic object to exist because it is man-made. I am concerned with expressing the clay as "a variety of mud" and I chose to examine visual characteristics that support this attitude.

As we experience life, we accumulate a resource of memories based on our sensory perceptions and awarenesses. The average American is

tactile-deprived, but has a visual bank of sensory experiences (8:15-19). For example, when someone sees ice cream, it reminds him of the cool, softness of the material. Without touching, tasting, or smelling, he can visually sense the ice cream from his bank of memories. If a clay object appears cool and soft (whether or not the viewer thinks of ice cream), he may react to the sensual softness of the material based on his past experiences.

Tactile texture refers to the actual surface texture of the fired clay. Appealing to the sense of touch, texture may be a result of the material or a texture imposed by man. Texture, like color, has its own symbolism. Any extreme texture may be interpreted as a harsh surface. For example, an extremely smooth surface is usually rendered tactually cold and repellent. Similarly, a very rough surface can be even more repelling than the previous example. Between these two extremes, an object may be tactually appealing (8:85-86). When a pot ". . . is made to declare itself through its own process of making, to the hand such a body is almost always warm" (8:89). Slip is a variant of clay and may reinforce the nature of the material

when applied to the clay surface. Unglazed clay possesses a rustic, unsophisticated character of the earth. Glazes can become very different from the clay, especially in texture and color (8:54).

Surface mattness/glossiness and glaze color influence how one perceives an object. It is difficult to make generalizations about color and their degree of gloss because there are always exceptions, but there may be some general rules which are, more often than not, consistent. Generally speaking: 1) the lighter and whiter the surface, the more it becomes associated with the precious, 2) the earth colors (in their subdued state) yield a warmer, more "natural" surface, 3) overbright colors tend to be perceived as harsh in nature, 4) a transparent glaze allows the viewer to look into the surface, rendering the surface as a softer one, 5) a high gloss glaze (reflecting light back like a mirror) usually provides a barrier between the viewer and the pot, 6) middle-range gloss appear more natural, 7) matt surfaces convey a reserved feeling (8:127-135).

CHAPTER IV

DEVELOPMENT OF MY FORMS AND IDEAS

As numerous definitions and approaches to the concept of softness emerged, it so defined my forms. At the onset of this thesis work (with functional objects in mind), I was concerned with the concept of softness in form. Later, I began to discover the softness of surface and tried to harmonize the two. Due to the nature of clay, this concern for softness seems appropriate to me.

My work began with softly squared jars. They appear as though a clay "skin" had been stretched over an inner structure (see Plates 3 and 4). Sources of inspiration were soft objects found in everyday life, such as pillows, marshmallows, and draped fabric. Chris Gustin's approach of re-wetting the clay and altering his forms from the inside, directly influenced this body of work. Coexisting with these squared jars, my cup forms were dipped in slip. Dipping them into slip covers the surface (like a skin) and rounds the edges.

My concern with squared forms was limiting. I soon discovered that the qualities of softness and plasticity could be expressed through marks caused in its making. The act of making and its processes relate to ideas of warmth and softness:

Wares which are not glazed, nor even slipped, but perhaps only burnished or slurry-washed, have quite another feel. Their body substance constitutes their surface. This circumstance may have overtones of "unpretentiousness," the "truth" of the pot not being covered over and given a veneer of "proper finish" (though this unpretentiousness may even be itself pretentious, as in the sophisticated Wedgwood Red and Basaltes wares). Instead, the pot body is made to declare itself through its own process of making. To the hand, such a body is almost always warm. . . (8:89-90).

Contrary to my original thinking, these new jar and basket forms are not simply squared or covered entirely with slip (see Plate 5). Ribbing lines are not smoothed over and color became increasingly important. Areas of sprayed glaze fall on protruding marks, accentuating surface lines. Subtle greens and blues enhance the unglazed, natural browns. Previous work was an exploration of form and now softness of surface was of primary interest. Ken Ferguson's work influenced my mark

making and throwing attitude. Showing some intentional marks and some accidental, my seemingly relaxed approach appears "natural" to the clay. Techniques used to achieve this "natural softness" were: 1) throwing marks made with a rib, 2) a continuation of slipwork on some, and none whatsoever on others, 3) coiled handles with impressions caused by a table-top edge as I rolled them out, 4) added clay "scraps" rubbed into the surface (like Turner), 5) re-wetting the pot after trimming and reworking the surface (like Gustin), 6) thumbing and softening the bases similar to the Medieval Englishware.

I realized that I had first been exploring form in the squared jars, then surface in the tall basket forms, but not harmonizing the two. I felt that in order to really achieve a visual softness, I must be sensitive to both form and surface.

In addition, it became apparent that I was concerned with a generalized function in my basket forms. I did not want to be vague about their function, but wanted to offer a more readily used object. They were becoming too tall and narrow to truly serve as baskets and their forms lacked the softness seen in their surface. They were fossil-

like of the processes; impressions, throwing marks, and the firing process captured the moment in which it was made.

Cup forms developed simultaneously with my other work. My cups are an outgrowth of what the Japanese did in their tea bowls. These cups provide a basis for my throwing attitude; quickly thrown and trimmed, they are not individually cherished. Only a select few become truly exceptional after they are fired. These cups are intimate and unpretentious. Porcelain slip enhances the visual and tactile textures as well as providing a white base for glazes. A transparent glaze allows light to penetrate through and reflect back, creating greater depth and softness in surface.

The green cup (see Plate 6) possesses a glaze depth that softens its surface. Subtle slip texture under the glaze emerges and the unglazed foot adds variety and contrast. As in the foot of this cup:

Most of the iron oxide clays burn brown. This seems to convey an impression, not so much a neutralized feeling, but more a feeling "ploughed back into the soil of reality." The turned earth--a warm feeling (8:147).

The dark, earthy green glaze conveys a sense of depth like that of water. The surface of this cup is soft, warm, and intimate. Further exploring the surface possibilities, Plates 7 through 9 reveal a softness like ice cream or icing on a cake. Brushing, combing, and faceting the slip conveys an energetic, momentary impression.

The cup (Plate 10) is similar to the other cups, but has a sophistication. Its appearance is not as literal (to ice cream), but it stimulates similar sensations. Color variation is enhanced by the wood firing process, increasing its variety and interest. In these cups, I was still "stale-mated" into the softness of surface; form was secondary.

Trying to unify form and surface, I began to develop baskets with cut surfaces (see Plates 11 and 12). I began by throwing a thick cylinder, then cut deeply into the surface using a twisted wire. From the inside, I swelled the form out into a bowl shape. This swelling creates an energy; the cut lines are stretched outward. This gesture and internal energy are like that of Shigaraki ware. These forms are "taking a deep breath of air"--they seem to be in motion. Can a

fired piece of clay seem to be in motion? Is this a softness? YES.

Slips are sprayed in a directional manner to enhance these swelling facets. Unlike the tall, narrow basket (Plate 5), my concern for function developed into a more receptive, open basket. The decoration is now a physical part of the form. Cut lines and textured handles reinforce the "woven-basket" image.



PLATE 3

Square Jar
12" High



PLATE 4

Square Jar
18" High



PLATE 5

Basket Form
22" High



PLATE 6

Cup
4 3/4" High



PLATE 7

Cup
4 1/2" High



PLATE 8

Cup
4" High



PLATE 9

Cup
4" High



PLATE 10

Cup
4 3/4" High



PLATE 11

Basket
12" High



PLATE 12

29

Basket
18" Wide

CHAPTER V

CONCLUSION

A visual softness may be achieved in form, surface, or both. The Japanese succeeded far beyond what I have begun. My square jars were the most successful in softness of form; the cups possess a softness of surface. In retrospect, a harmony between softness of surface and form was never really achieved. The faceted baskets approach softness of form and surface, but are insufficient. Perhaps more time (a lifetime?) would enable me to achieve my objective. On the other hand, maybe this fondness of the sensuousness and softness may only be found when the clay is wet.

But one must remember that this softness is a paradox. A fired pot is never soft in reality; it is soft only by analogy. Philip Rawson wrote:

The essence of the metaphor is that the suggestions conveyed by the pot's inflections and forms are communicated as allusions, while the pot retains its existential identity, visibly and tactually, as what in fact it is. Thus a Korean wine-jar may be trimmed, pinched,

striated, and lidded to suggest a fat bamboo sprout; but it remains nevertheless unequivocally a pot. Its colour may be that of "distant mountains," but only by analogy: its glaze remains glaze (7:189).

CHAPTER VI

TECHNICAL--HIGH TEMPERATURE SAWDUST INJECTION

Wood firing can be a very demanding process, both physically and mentally. Sawdust injection, supplementing the wood needed to fire a particular kiln, can greatly reduce time, labor, and money. With dwindling resources of fuel, sawdust provides a viable alternative to gas or oil, and greatly reduces the consumption of cordwood in a wood kiln firing. Sawdust can be obtained at little or no cost.

Materials needed to set up a sawdust injection system are minimal. The pressure blower is the most important of the equipment needed. This electric blower must have the horsepower and a sizable squirrel-cage in order to transport the quantities of sawdust needed to fire.

Dayton Electric Manufacturing Company, 5959 West Howard Street, Chicago, Illinois, 60648, is a supplier that may provide you with a suitable blower. One blower that I have used is: Dayton Model 4C129, with a 10 5/8 inch diameter wheel

(2 1/2 inch wide). A 3/4 horsepower motor should provide 500 C.F.M. (cubic feet per minute) of air. The initial cost of a blower may appear high, but it will pay for itself in money that you will save on cordwood.

In addition to a blower, other materials needed are: 1) 3" flexible piping (preferably stainless steel), 2) PVC joint, if injecting in two or more places simultaneously, 3) intake piping (approximately 2 inch diameter), 4) 50 gallon drum, 5) miscellaneous hardware, and 6) pure dry sawdust (see Diagram 1 and Plate 13).

The firing cycle with sawdust begins after red heat. Fire normally with wood up to 1733°F and body reduce at this time. After a twenty minute body reduction, begin injecting the sawdust. No additional stoking with wood is necessary when the injection system is working properly. You should gain temperature rapidly and steadily until 2380°F is achieved. Follow the sawdust by stoking wood for at least two hours; this allows a good melt for ash and glazes. During this soaking period, a reduction atmosphere will insure good glaze color.

Conversion of sawdust to wood, by weight, provides information on the amount of cordwood that has been saved:

1 ft³ sawdust = 4 lbs., so:

1 ft³ sawdust = 4 lbs. hardwood

1 yd³ sawdust = 108 lbs. hardwood

Hardwood ($\frac{1}{4}$ split, 16" long):

1 ft² × 16 = 50 lbs.

so: 1 face cord (4' × 8' × 16") = 1600 lbs.

So by weight:

2 yds³ sawdust = 1/8 face cord

16 yds³ sawdust = 1 face cord

After estimating the volume of sawdust used in a firing, you may calculate the amount of cordwood saved. There are too many variables for me to accurately calculate how much sawdust will be needed to fire an unknown kiln, but I can provide some general guidelines. I have used this sawdust system in two different wood kilns. In a 27 cu. ft. kiln, I used approximately 5 to 7 cubic yards of sawdust to reach 2300°F from bisque temperature. In the other kiln, a 48 cubic foot, about 7 to 9 cubic yards of sawdust was needed. Firing

with sawdust from bisque (cone 08) to 2300°F (cone 9) can go as fast as 3 to 4 hours, if properly injected.

My experience with the sawdust firing process is that the reduction atmosphere is more difficult to control than when using wood. The atmosphere is easily oxidized due to large amounts of air needed to inject the sawdust. Further testing may provide a better understanding of atmospheric conditions.

Injecting sawdust is like stoking wood. If over-stoked, sawdust will be wasted in an over-reducing atmosphere. Understoking causes cold air to enter and you rapidly lose temperature. This system is presently hand-fed, a regulated feeding device may be implemented with experimentation.

According to my results, sawdust firing provides less ash and less directional flashing than when burning wood. The reason for this difference in flashing is that the sawdust burns throughout the kiln; the wood only burns in the firebox. The sawdust is injected with so much force and it burns so efficiently, that there is no "direction" of fuel combustion. This may or may not be a disadvantage, depending on the effects that the potter wants.

SAWDUST INJECTION SYSTEM

DIAGRAM 1

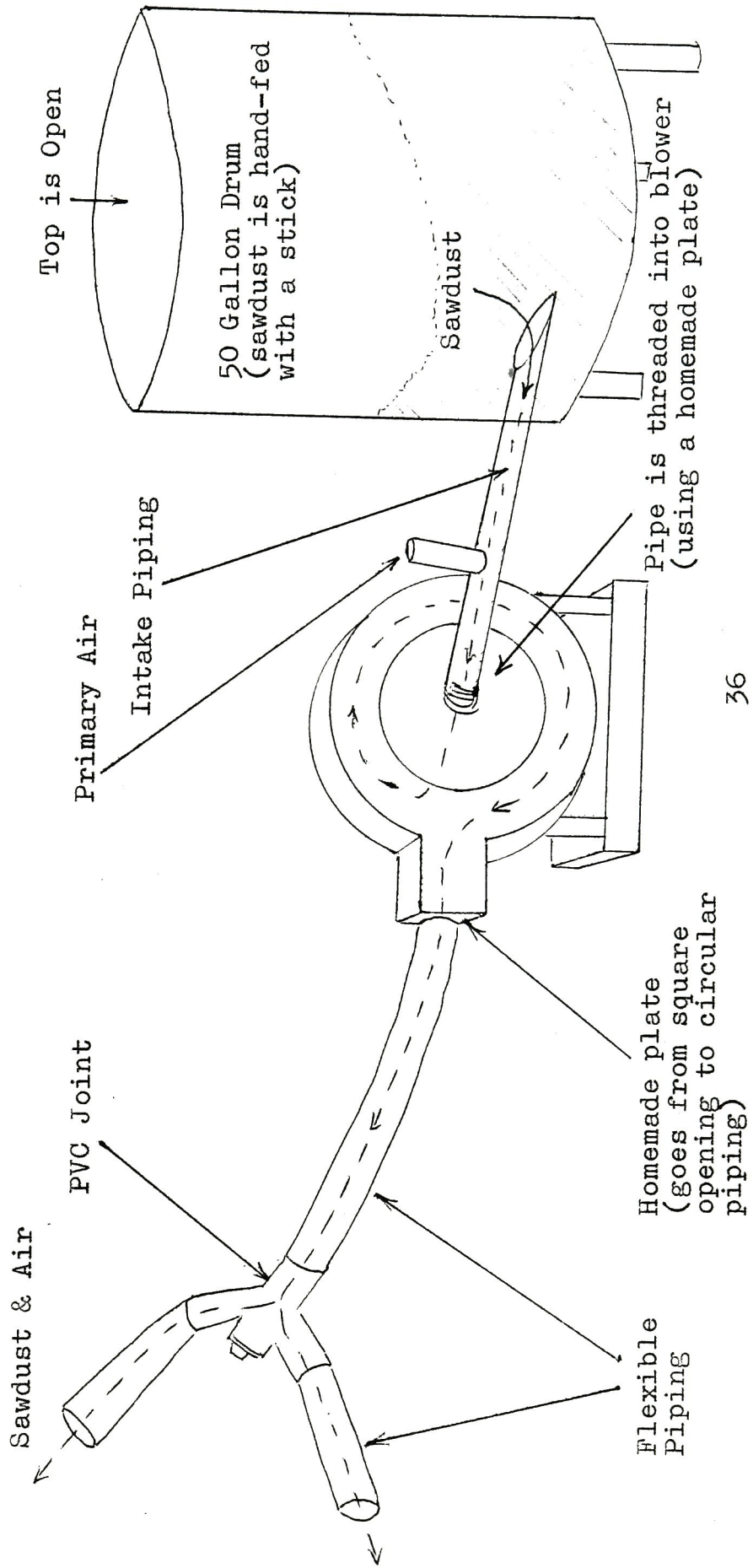
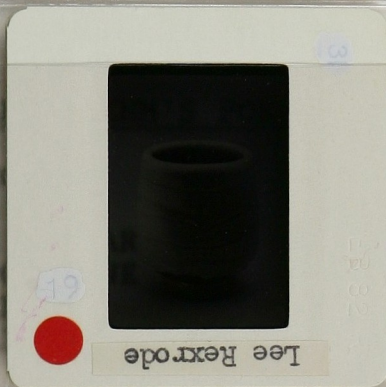
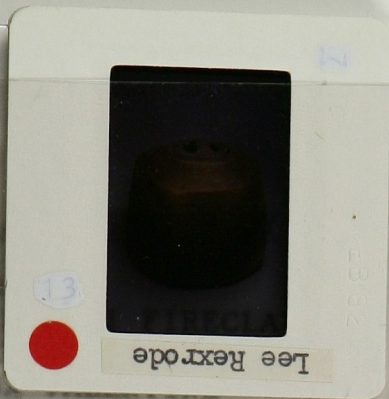




PLATE 13

Sawdust Firing



* All formulas pertain to Cone 9-10 reduction firing.

FORMULAS*

S.A.C. SHOP BODY

GOLDART	50
MISSOURI FIRECLAY	25
KENTUCKY SPECIAL	15
PBX VALENTINE	5
G-200	8
GROG	4
	<u>107</u>

MARY ROEHM'S PORCELAIN

GROLLEG	25	
OM #4	25	I used this
XX SAGGAR	25	porcelain as
SPODUMENE	9	a slip.
NEPH SY	11	
FLINT	5	
	<u>100</u>	

ORANGE SHINO

NEPH SY	55
GOLDART	30
KONA F-4	10
SODA ASH	10
SPODUMENE	5
	<u>110</u>

* All formulas pertain to Cone 9-10 reduction firing.

AMY'S GREY

BARIUM CARBONATE	10.43
DOLOMITE	15.57
CORNWALL STONE	39.59
EPK	21.74
FLINT	12.67
	<u>100.00</u>

add: 3.26% Tin Oxide
1% Black Nickel Oxide

ROCKY MOUNTAIN CREAM

KANSAS VOLCANIC ASH	40
DOLOMITE	30
EPK	30
	<u>100</u>

TOM'S GREEN

CORNWALL STONE	75
WHITING	28
COLEMANITE	5
FLINT	16
TENN BALL	10
DOLOMITE	6
OPAX	8
BARIUM CARBONATE	23
CUSTAR FELDSPAR	21
KONA F-4	18
COPPER CARBONATE	16
	<u>216</u>

ROB'S GREEN

CORNWALL STONE	75
WHITING	18
COLEMANITE	5
COPPER CARBONATE	19
BARIUM CARBONATE	10
	<u>118</u>

JEFF'S LONG BEACH BLUE

WHITING	19.49
CUSTAR	63.55
EPK	<u>16.96</u>
	100.00

add: .85% COBALT CARBONATE
4% RUTILE

TED'S WHITE

DOLOMITE	15
WHITING	5
NEPH SY	63
TENN BALL	10
FLINT	<u>7</u>
	100

add: 7% TIN OXIDE
7% RUTILE

LIST OF REFERENCES

1. Akaboshi, Goro and Nakamaru, Heiichiro. Five Centuries of Korean Ceramics. New York: John Weatherhill, Inc., 1975.
2. The American College Dictionary, 1965 ed. s.v.
3. Charleston, Robert J., ed. World Ceramics. New York: McGraw Hill, 1968.
4. Clark, Garth and Hughto, Margie. A Century of Ceramics in the United States (1878-1978). New York: E.P. Dutton, 1979.
5. Cort, Louise Allison. Shigaraki, A Potter's Valley. Tokyo, New York, and San Francisco: Kodansha International Limited, 1979.
6. Jenyns, Soame. Japanese Pottery. London: Faber and Faber Limited, 1971.
7. Rackham, Bernard. Medieval English Pottery. 2nd ed. London: Faber and Faber Limited, 1972.
8. Rawson, Philip. Ceramics. London: Oxford University Press, 1971.