

EXPERIMENTATION WITH SELECTED
DEVELOPMENTAL FABRICATION AND JOINING
METHODS FOR INTEGRATING WOODEN SHAPES WITH
FIRE-CLAY ART FORMS

A THESIS

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS iv

LIST OF PLATES v

	Page
INTRODUCTION	1-2
CHAPTER	
I. A STATEMENT OF THE PROBLEM AND PURPOSES	3
II. PROCEDURES	2-28
Creating the Ceramic Form	
Selecting and Shaping Wooden Pieces	
Selection of Adhesives (glues)	
Execution of Wood and Ceramic Art Forms	
III. CONCLUSION	29
DEFINITION OF TERMS	30-31
BIBLIOGRAPHY	32

LIST OF ILLUSTRATIONS

Figure		Page
1.	Adhesive Table	8
2.	Wall Pot	9
3.	Wooden Footed Pot	10
4.	Bean Pot	12
5.	31 Inch Tall Hand Build Pot	13
6.	Slab Built Sculpture with Wood	15
7.	Illustration of Pot with Tree Bark	22

LIST OF PLATES

Plates		Page
I.	Ceramic Sculpture with Driftwood	17
II.	Stoneware Bottle with Wood and Shells	18
III.	Wall Hanging with Ceramic, Wood and Jute	20
IV.	Tree Bark Decorated Pot	23
V.	Wood and Feathered Wall Pot	24
VI.	Ceramic Sculpture with Wood and Lace	25
VII.	Ceramic Vase with Wood and Jute	26
VIII.	Free Form Sculpture with Pheasant Feathers and Wood	27
IX.	Covered Jar with Cherry Wood Knob	28

INTRODUCTION

Today potters seek out bold solutions and new idioms for expression. Pottery and wood carving are two of the oldest of the arts, and the urge to decorate them is just as ancient. Deviating from the norm of combining other objects or materials with ceramic forms is not a new means of creative expression. Combining ceramic forms with metals, fibers, feathers, mirrors, or wood is not uncommon. To give one example, in April 1980, Ceramics Monthly featured a 20-inch high glazed stoneware creation with fiber and found objects, entitled, "Fertility Ritual, (Image Number Four)", by Wallas Bing Davis.

Today's craftsmen are not the first to use mixed-media. The ancient Chinese put their "Dragon Bowls", vases and statues on lacquered wooden bases; also when shipping they usually mounted them in gold or silver to preserve and protect them from breakage.¹

The utilitarian and artistic functions of wood have also been a part of man's history for thousands of years. These include simple tools, sculptured idols, the construction of furniture and the building of homes.

¹Cox, Warren E., The Book of Pottery and Porcelain (New York: Brown, 1944), p. 38.

The artist strongly agrees with Robert L. Butler, author of Wood for Carvers and Craftsmen, who views wood carving

as the art form involving all the senses,-- like all other arts, vision plays the largest part-- touch the second most important sense: the sculptor is compelled to move his hands over the form after each sequence of cuts-- the wood carver is exposed to an array of odors limited only by the variety of wood he uses. This is experienced by the wood carver during the final moments of sanding.²

Tonal qualities are produced by musical instruments made partly or entirely of wood. For any creative endeavor, whether it be functional or for pure expression, wood is beautiful, and in most places of the world plentiful and relatively cheap.

It is no longer necessary for ceramics (sculptural or utilitarian) to be separated aesthetically from other media such as wood. Instead of the standard uses of wood, in relationship to ceramics having a utilitarian function, such as handles or knobs to remove tops from clay pots or a wooden stand to display a clay object, wood can be integrated into the design of the ceramic form.

²Robert L. Butler, Wood for Carvers and Craftsmen (Indianapolis, Indiana; Audel & Co., 1973), p. 4.

CHAPTER I

A STATEMENT OF THE PROBLEM AND PURPOSE

The problem of this study was to develop and fabricate methods for attaching wooden shapes to fired-clay forms. For this study, working methods were planned, and technological and economical limits were set.

This study was made for the practicing artist, who would use mixed-media aesthetically with ceramic as a means of creative expression at a minimal cost. In Ceramics, Glenn Nelson stated, "The Ceramist of today must learn both from the past and from his fellow potters in order to develop a dictionary of forms from which to select the nuances that reflect his own feelings."³ In the same sense, this study of ways and means of attaching woods or mixed-media to ceramics is carried out.

Since forms made of clay are more perishable than wooden forms (in the sense of breakage) this study is important in determining the feasibility and validity for combining wooden shapes with ceramic forms as an art statement in the three-dimensional area of visual arts.

³Glenn Nelson, Ceramics, A Potter's Handbook (New York: Holt, Rinehart and Winston, Inc., 1971), p. 69.

CHAPTER II

PROCEDURES

This study dealt primarily with ways and means of attaching wood to ceramic forms. Practical evaluations were made for the use of tools and materials. Therefore, it was concluded that all materials and tools were to be obtained at a minimal cost. The essential materials were: ceramic forms, glue, jute, wire, wooden shapes and other materials. The materials are discussed in the section dealing with the creation of each form.

Creating the Ceramic Form

The clay forms were either created from a series of drawings or they were fabricated at the artist's discretion. The forms were constructed of stoneware clay purchased and mixed by the artist in the Texas Woman's University ceramics lab. A Texas Woman's University "batch recipe" for stoneware clay was used. This clay fires at Orton Standard Pyrometric cone 8 to 10, an equivalent Fahrenheit of approximately 2200 to 2500 degrees.

Stoneware clay was used because of its flexibility and durability as a pottery and sculpture medium. The clay structures were created by one or a combination of two or more clay working methods (slab, wheel-thrown or coils).

The clay forms were fired in gas kilns in the clay firing laboratory at Texas Woman's University. After the bisque firing, stains and/or glazes were applied to the fired-clay forms. The forms were then fired a final time in a glaze firing.

Selecting and Shaping Wooden Shapes

Satisfying the contemplated aesthetics of the ceramic forms in this study required skillful planning as well as a basic skill in wood craftsmanship.

All considerations were taken concerning practicality as to the amount of technical work and cost put into the wooden parts of each form. Therefore, for this study, the minimums were set: first to keep the wooden components as natural as possible, then to collect or purchase scraps of wood such as poplar, walnut, pine, etc. Close attention was given to selecting the types of wood that would enhance the color and shape of each ceramic form. The wooden scraps were measured, sawed or cut, then carved and rasped to form the desired shapes that would become an aesthetic part of the total art form.

For designing and fashioning the wooden shapes, a selection of tools and materials were on hand:

Cutting and shaping tools included a coping saw, a portable jigsaw, a keyhole saw, a standard set of Stanley carving tools, a wooden mallet, wood chisels, and wood rasp.

Sanding was done on each wooden shape after the final cutting and shaping was completed. For this study flint and garnet abrasive papers were used to sand the wood. Garnet sanding paper was used most in this study. Flint abrasive is made of soft sandstone. Flint paper is cheap but does not last long. Garnet abrasive is a reddish-brown, hard mineral that is excellent for hand sanding. Although garnet paper cost more per sheet, its long lasting quality made it cheaper to use than ~~to use than flint.~~

The following grades of sandpaper was used: For smoothing deep scratches or flaws in the wood, a coarse to medium grain (50 to 80) was used. Fine to extra fine grained (100 to 220) sanding paper was used for the final smoothing before applying a final finish. Sanding tools, such as a sanding block, was not used since most of the wooden shapes were convex shapes small enough to fit into the hands.

Selection of Adhesives (glues)

Adhesives were used to fasten wood or other media to the ceramic forms. The adhesives were purchased in small quantities for economical reasons. To avoid unnecessary waste, glues that required mixing were mixed in small amounts as needed.

Glues such as animal glues were not used as they are not waterproof and do not adhere satisfactorily to hard, smooth surfaces. Therefore, only chemical type glues and adhesives were used. General information acquired through research on adhesive experiments is recorded in a glue table on page 8.

Execution of the Wood and Fired-Clay Art Forms

This study contains experiments from several ceramic creations.

clay form was pre-fabricated to accommodate one or more means of attaching wood.

Attaching wood by means of jump rings is a fun method. Jump rings can be made from most any bendable wire that will hold a shape. Form 1 shown on page 9 is a wheel-thrown, blue glazed stoneware wall pot with redwood wooden shapes attached by copper jump rings. The jump rings were made by wrapping the wire snugly around a 1" dowel rod, followed by sawing the wire diagonally across the wire and dowel rod. The jump rings were put through the wooden shapes and through pre-created slots in the ceramic pot.

Form 2, page 10, shows a 12" wooden footed ceramic bottle with yellow glaze. This bottle was created from drawings designed by the artist for a series of wooden-footed bottles and bowls. The clay bottle was built entirely with coils of clay.

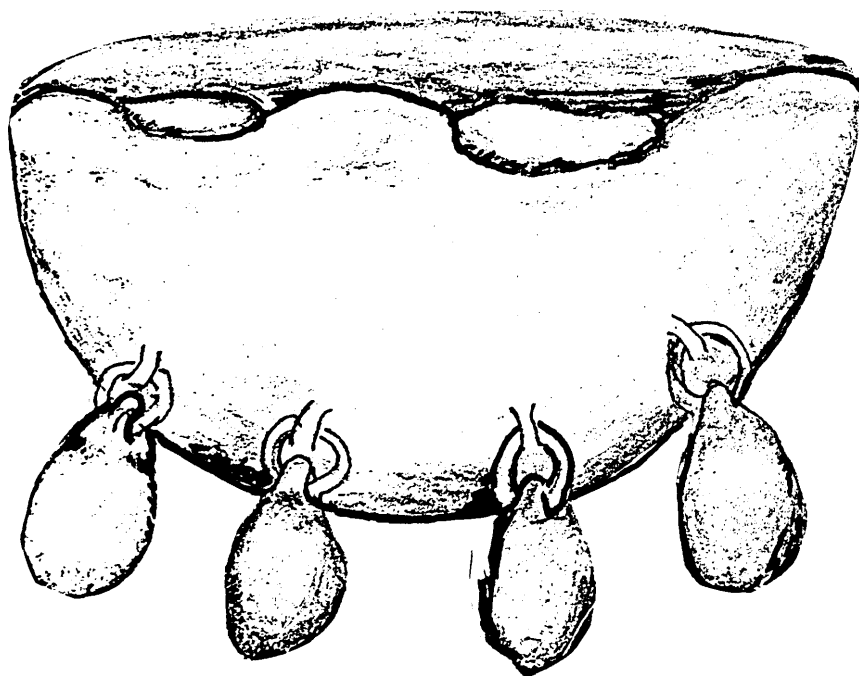
The wooden feet were carved from pre-cut scraps of walnut wood before the clay bottle was built. The carved wood was pressed into the proper standing position while the clay was slightly wet or almost leather-hard. The wooden shapes were attached after the final firing of the clay bottle with PC7 epoxy paste.

A D H E S I V E T A B L E

GLUE TYPES	BRAND NAME	ROOM TEMPERATURE	PREPARATION APPLICATION	ADVANTAGES
Liquid Resin squeeze type containers	Rose White and Elmers	Any tempera- ture above 60°. The warmer the better	Ready to use. Spouted Bot- tle or tube. Spread gener- ously.	Good for small as- semblage. Little to no water resistance. Dries clear.
Cyanoacry Late adhesive one container	Super Glue Elmer's Wonder Bond Plus	Any	Ready to use. Spout contain- er. Spread small amount on surface to be glued.	Dries very quickly. Not good for large jobs. Very brittle. Is water resistant.
<u>EPOXY</u> Resourceful Two contain- ers . . . (1) Liquid or powdered catalyst, (2) Liquid Resin hardner	PC7 Epoxy Paste B.F. Good- rich Epoxy Liquid	Must be warm temperature 70° or warmer dries and spreads best at 90°.	Mix in equal parts or as directed. Mix as needed. Ap- ply thin coat to both sur- faces.. Use immediately.	Dries fast, water and heat resistant. Paste type good for vertical adhering.
Temporary adhesive	Fun-Tak, a reusable adhesive.	60 ° and above	Ready to use in plastic con- tainer. Use as needed.	Replaces tape and small props.

FIGURE 2

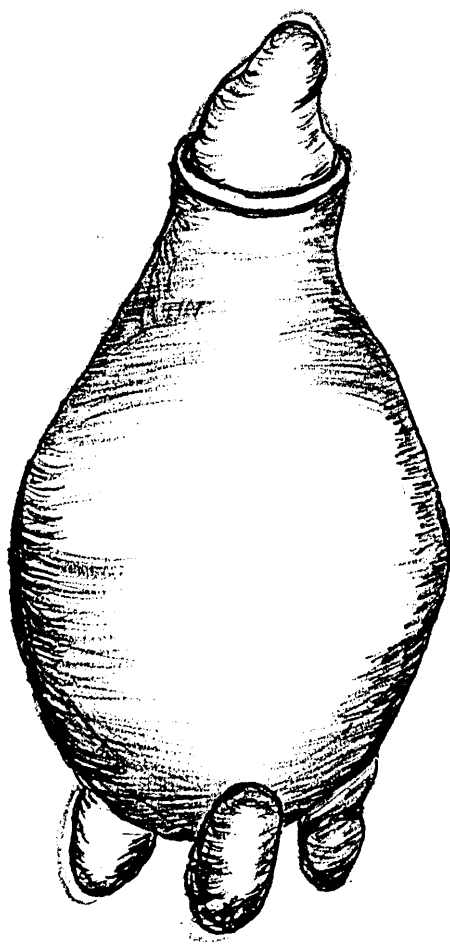
WALL POT



FORM 1

FIGURE 3

WOODEN FOOTED BOTTLE



FORM 2

This paste was chosen because of its strength and durability. PC7 is a multi-purpose, waterproof epoxy paste that can be used as a bonder and filler. Like other epoxy adhesives, PC7 comes in two containers and is mixed in equal parts. The epoxy can be purchased in most plumbing and hardware stores.

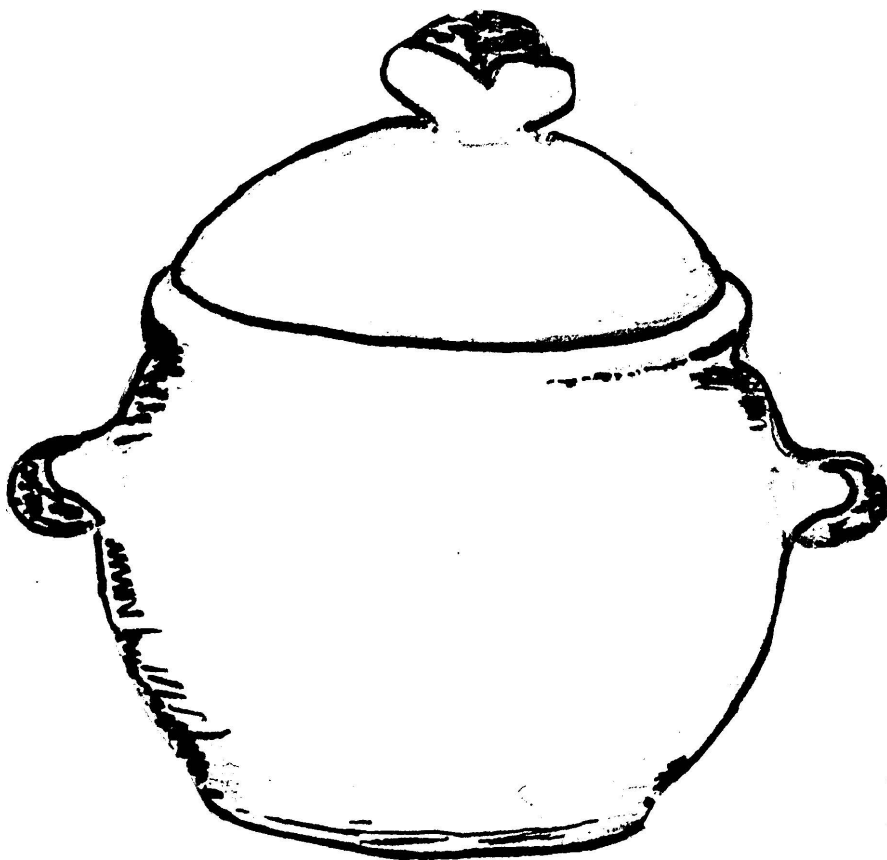
PC7 was used to adhere the wooden portion of the side and top handles of the wheel-thrown bean pot (form 3, page 12). Since this pot might possibly be used in a microwave oven, glue was used instead of the traditional use of screws for attaching knobs, etc., as utensils containing metal should not be used in a microwave.

Form 4, page 13, is a 31" tall hand-built pot with incised designs and wooden shapes made of poplar, cut to fit in pre-cut spaces. This pot is entirely hand-built by the coil method. The container's horizontal and vertical lines were cut into the leather-hard clay. Once this was completed, square and rectangular shapes were cut out of the clay form, leaving open spaces for wooden shapes to be inserted after the final firing. Wooden shapes were carved to fit the open spaces of the ceramic form after the first firing. This was done at this time because most of the initial shrinkage occurs during the bisque firing.

The wooden shapes that did not fit because of clay shrinkage needed only a little work with a rasp. The wood was sanded then cleaned with alcohol. The area on the ceramic form was also cleaned where the wooden shapes were to be attached. The cleaned wood was then glued into place with B. F. Goodrich epoxy.

FIGURE 4

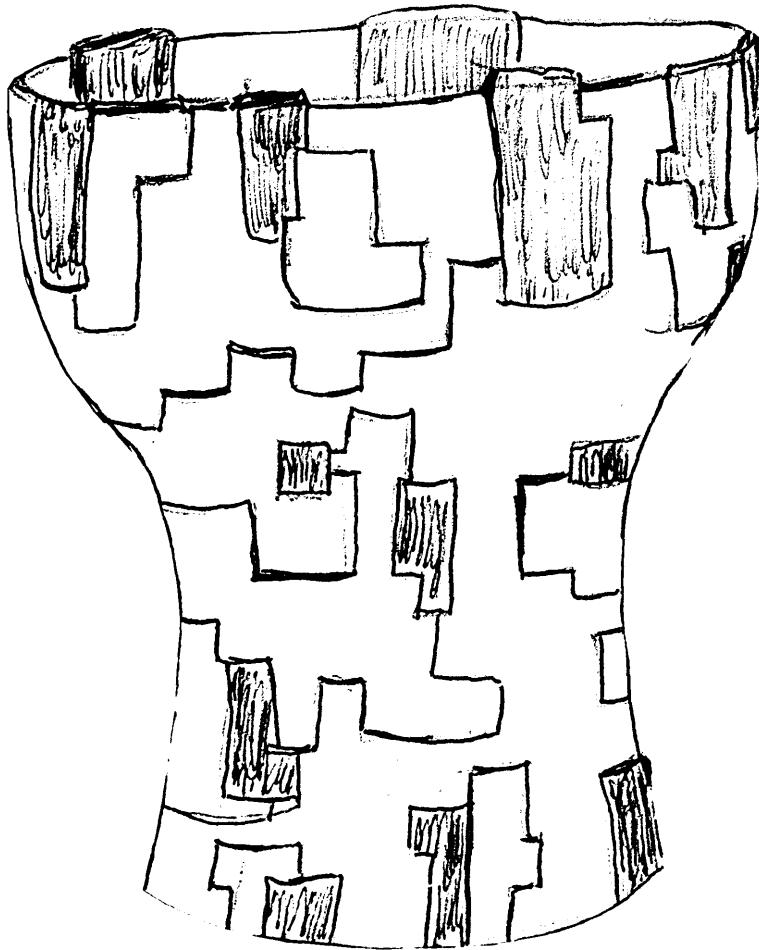
BEAN POT



FORM 3

FIGURE 5 -

31 INCH TALL HAND BUILT POT



FORM 4

This epoxy was used here because it dries clear and will withstand moisture for the pot's use as a planter as well as for flower arrangements. Since the use of the pot might involve moisture, four layers of polyurethane were applied on the wooden areas inside of the pot. The outer wooden areas were treated with Johnson's paste wax.

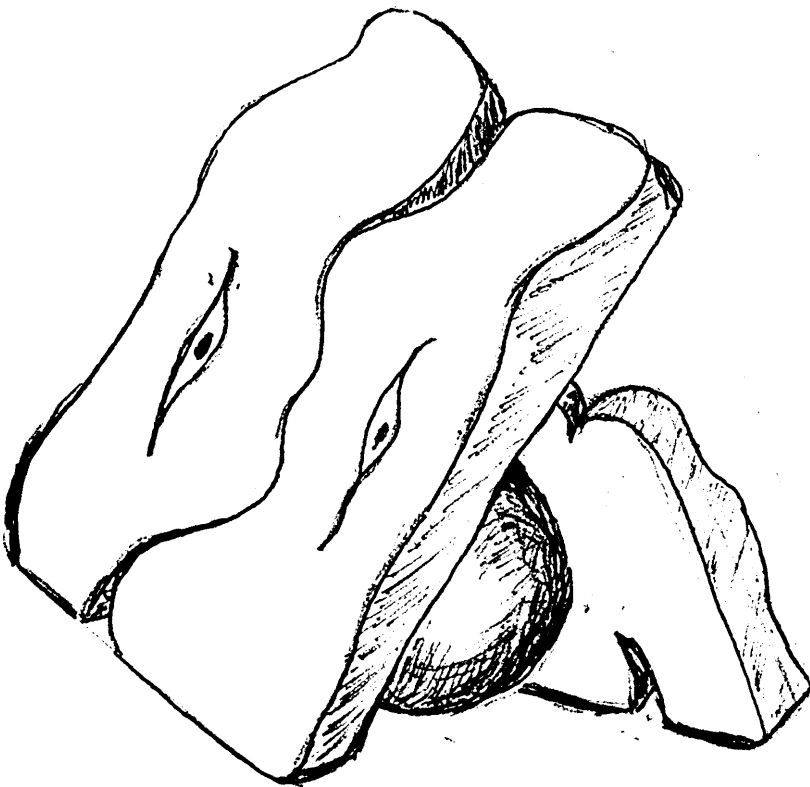
Form 5, page 15, is a drawing from a series of studies in free form sculpture made of fired-clay and wood. Red iron oxide was applied after the first firing, thus causing the rich brown color of the ceramic area of the sculpture. The clay slabs are 30" X 9" and 14" X 9" with a thickness varying from $\frac{1}{2}$ " to $1\frac{1}{2}$ ". The sculpture is 15" high after completion of construction.

The designs on the clay slab forms were incised into the clay while it was leather-hard. As part of the incised design, two countersink type areas were created in each clay slab, making the area for the screws $\frac{1}{2}$ " thick. Oval headed brass wood screws size No. 12, $1\frac{1}{2}$ " long were used to attach the slab to the wood. Holes for the screws were made large enough to allow for clay shrinkage during drying and firing. The countersink design and the oval headed brass screws were planned to be part of the aesthetic design of the sculpture.

Form 6, Plate I, page 17 is a combination of wheel-thrown pots and bowls combined to form a sculpture. This sculpture was designed to display weatherworn driftwood. Jute was used to take the place of what could have otherwise been clay components. The wood in the work speaks for itself; in other words, clay could not take its place.

FIGURE 6

SLAB BUILT SCULPTURE WITH WOOD



FORM 5

No wood crafting was necessary since the wood was used as it was found and the ceramic form was designed for the wood. To attach jute to the form, Wilhold Contact Cement was tested and found to suit this purpose. Contact cement has a very sticky rubber-like consistency desirable for adhering in a vertical position. The cement holds the pieces of jute in place while drying. Also, if changes were desired in position or color, this glue allows this without the problems of fast hard drying or slipping out of place. The wooden parts were attached with epoxy.

Form 7, Plate II, page 18 is a wheel-thrown and slab built 12" bottle made of stoneware clay with brown glaze. The bottle is decorated with wooden beads and urching shells attached with copper wire. The copper wire was shaped into a lacy design with round nose and flat nose jeweler's pliers. The bottle was pre-designed for attachments while the clay was wet. Holes were made for the wire to be threaded through after the clay form was leather-hard with a special tool for making holes in clay.

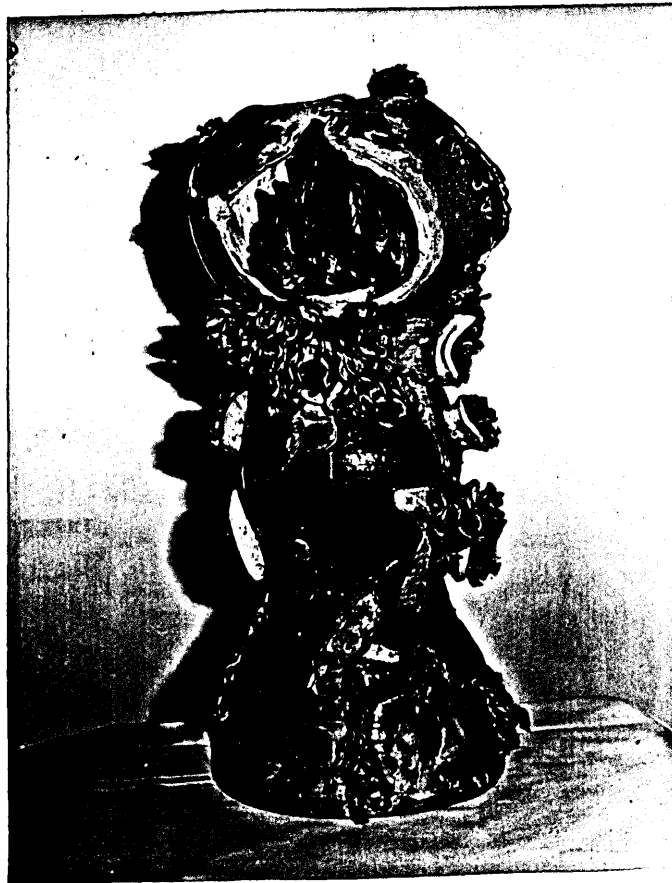
Form 8, Plate III, page 20, is work from a series of wall hangings designed and created by the artist. The jute, ceramic, and wood creation was created as follows:

The clay forms were created from slabs of stoneware clay which was bisque fired; then clay slips were painted on the areas where color was desired. The final firing was done in a salt firing. The salt firing process gives the ceramic ware its high gloss and iridescent sheen.

The ceramic pieces were designed to be part of the total wall hanging with pre-cut holes for threading the jute through. Wooden shapes were fashioned from poplar wood.

PLATE I

CERAMIC SCULPTURE
WITH DRIFTWOOD



FORM 6

PLATE II

STONEWARE BOTTLE WITH
WOOD AND SHELLS



FORM 7

The wooden shapes were cut, rasped and sanded before being attached to 2½" X 3" cotton and rayon jute weaving, which was woven by the artist on a cardboard loom.

The fired-clay forms and wooden pieces were positioned into a balanced composition onto the woven ground. Next the wood was secured to the ceramic form by putting the jute through pre-fabricated holes. Holes were drilled into the wood with an electric hand drill using a 3/8" drill bit. Then the wood and the ceramic forms were attached to the woven ground by the ends of the jute that was used to put the wood and clay forms together.

A citrus fruit peeler, made by Tupperware, was used as a hook rug device. This device was used to pull the pieces of jute through the upper side of the work, thus creating the finishing touches of the aesthetic balance of the total work.

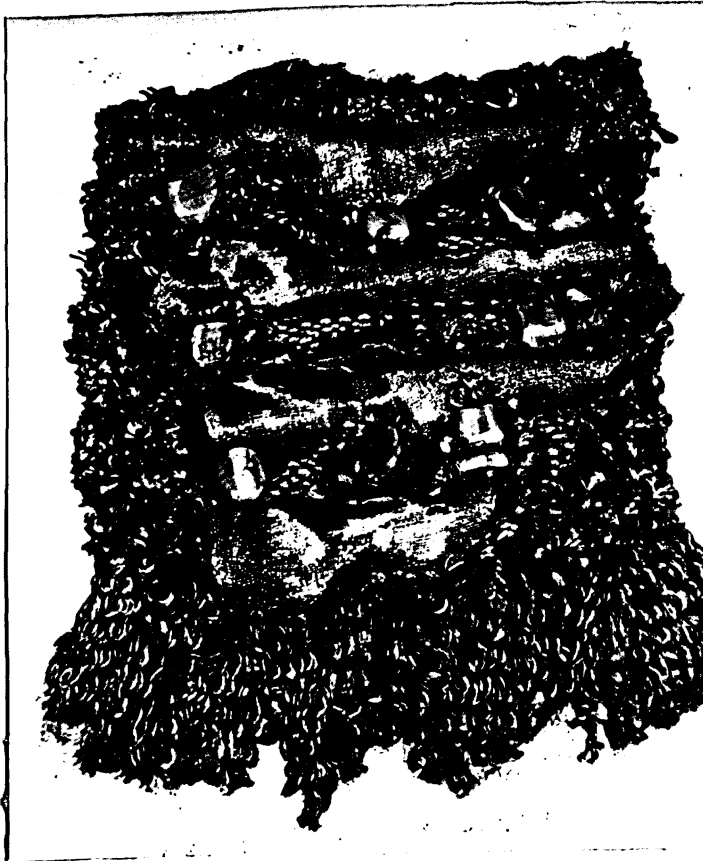
As a wood preservative and beautifier, Scott's Liquid Gold wax was applied on the wood after the work was completed.

Form 9, Plate IV, page 23 is a pearl white glazed pot with tree bark decoration. The sun dried oaktree bark was broken into 4" X 1½", and 2" X 1" pieces then carved to fit over the top edge of the pot, as illustrated on page 22.

Cutting the strips into 1½" pieces made it easier to affix the bark to the pot because the pot can function as a container for dried or cut flowers, or a show piece. Pieces of outer bark were glued around the pot's bottom. The wooden parts were treated with Scott's Liquid Gold wax as a preservative.

PLATE III

WALL HANGING WITH CERAMIC
WOOD AND JUTE



FORM 8

The following studies were taken from one or more of the same series of studies previously discussed. These studies were done either to improve attachment methods and/or to satisfy the artist's urge to create.

Form 10, Plate IV, page 24 is a wheel-thrown wall pot with walnut and ashwood attached by copper jump rings. Epoxy was used to adhere owl feathers after the wooden shapes were attached.

Form 11, Plate VI, page 25 is a ceramic sculpture build from wheel-thrown pots. Human faces and lines were incised into the pot's surface while the clay was leather-hard. The lace was affixed to the pot with Elmer's white glue. Epoxy was used to adhere the walnut wooden shapes in place while the epoxy hardened. (See glue chart for further information on Fun-tac adhesive.)

Elmer's glue proved to be excellent for gluing lace and jute to the ceramic surface because the fingers were used to press the material into place, and this glue can be washed off with water.

Form 12, Plate VII, page 26 is a 14" tall salt fired vase with ashwood and jute. The jute was saturated with Elmer's glue then positioned into a line design on the vase. Epoxy was used to attach the wooden shapes.

Form 13, Plate VIII, page 27 is a 12½" X 9" free form study in clay. This ceramic sculpture has carved redwood shapes and pheasant feather attachments which were epoxied to the form.

Form 14, Plate IX, page 28 is an 11" tall covered jar with a cherry wood knob on the lid. The wood was attached with epoxy.

FIGURE 7
ILLUSTRATION OF BARK POT

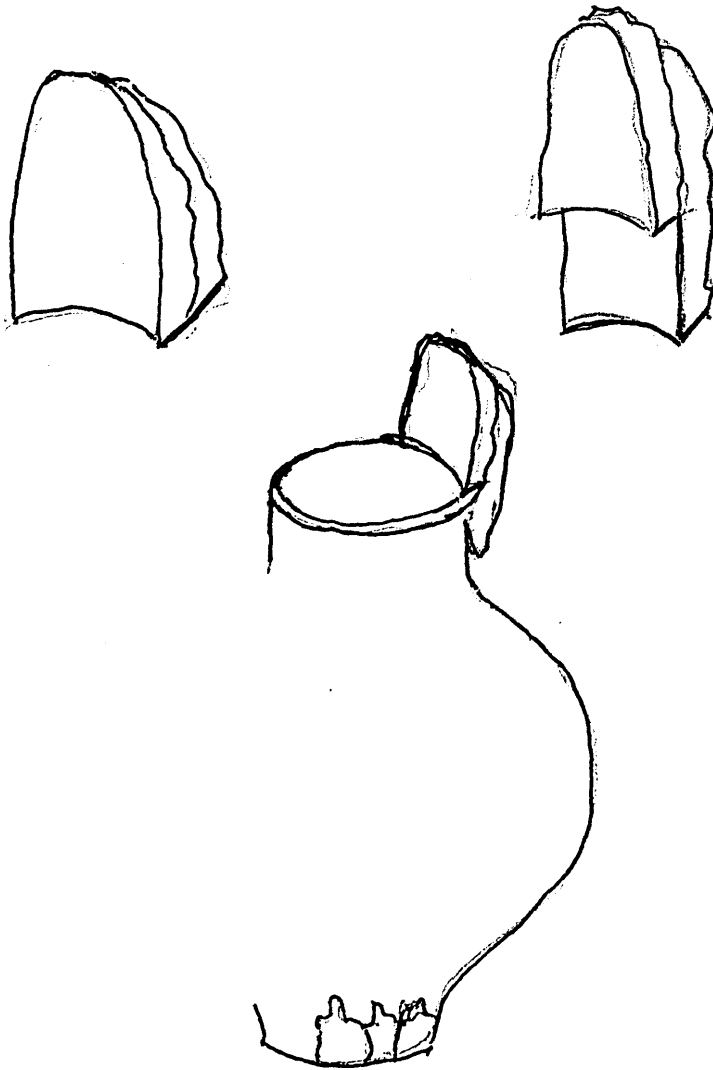


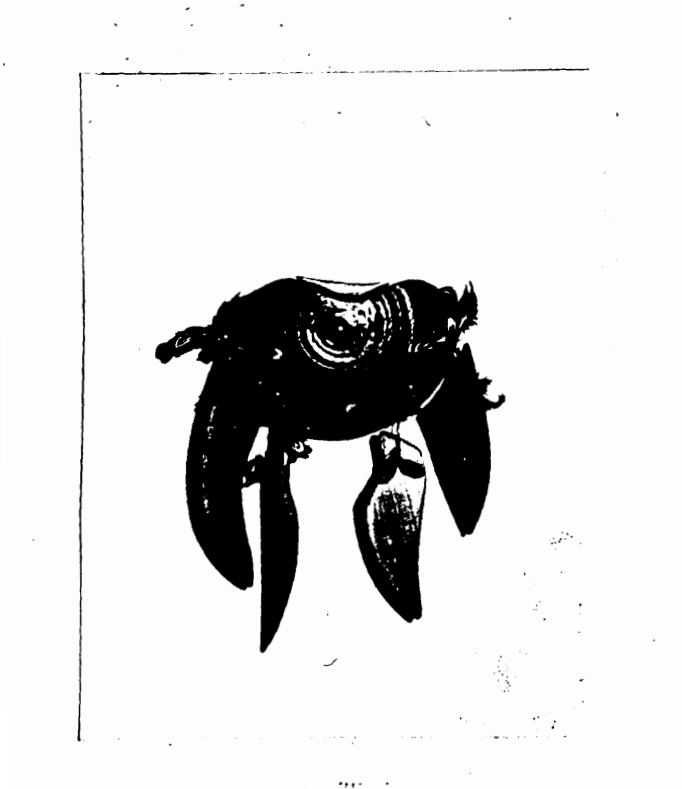
PLATE IV
TREE BARK DECORATED POT



FORM 9

PLATE V

WOOD AND FEATHERED WALL POT



FORM 10

PLATE VI

CERAMIC SCULPTURE WITH WOOD AND LACE



FORM 11

PLATE VII

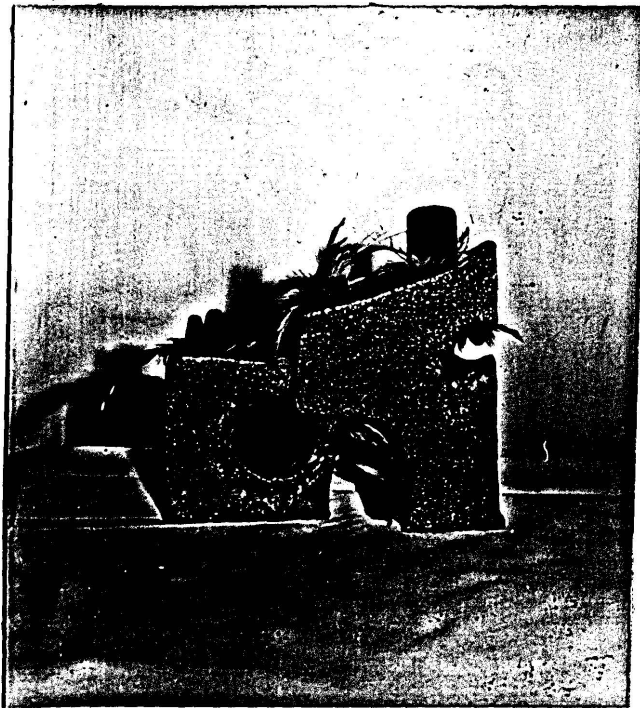
CERAMIC VASE WITH WOOD AND JUTE



FORM 12

PLATE VIII

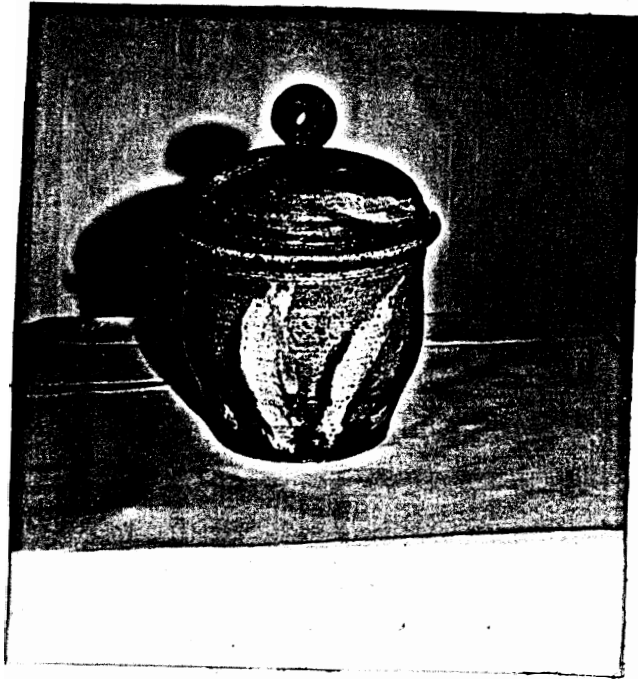
FREE FORM SCULPTURE
WITH PHEASANT FEATHERS AND WOOD



FORM 13

PLATE IX

COVERED JAR WITH
CHERRY WOOD KNOB



FORM 14

CHAPTER III

CONCLUSION

This study did not by any means cover all of the wide range of possibilities of attaching wooden shapes or other objects to ceramic forms. However, the experiments in this study verify the feasibility of integrating wooden shapes with fired-clay forms by means of attaching. This study further verifies that wooden attachments can serve as a functional value to the aesthetic quality of ceramic art forms.

The goals of this study were accomplished by using clay fabrications and glue. The process of fabricating joining methods as the clay forms were being built, made it more possible to use jute, wire, and screws as means of attaching wooden shapes to ceramic art forms.

Glue was most valuable to the goals of this study, especially the modern adhesives such as epoxies. Epoxies made possible the otherwise impossible task of putting together wood and other materials with ceramic forms, because of its bonding qualities and (in some types) quick drying characteristics.

Creating art forms by integrating wood and fired-clay forms is a very personal approach to creative expression. The joy of creating visually balanced and functional works has been a personal goal of this study. Of the many ways to create with clay and wood, combining the two aesthetically has been rewarding.

DEFINITION OF TERMS

Abrasives - The rough grains found on one side of sandpaper that causes the working away of a softer surface such as wood, Reed 1981.

Bisque Firing - "The first firing; removes combined water and usually produces a porous pot." The Off-Wheel Pottery Book, by Raymond Hull and Ida Claire Larden, 1975.

Ceramics - Clay objects that have been baked or fired in a furnace called a kiln, Reed, 1976.

Coil Method - "To make clay objects by building with ropes or coils of clay." Clay and Glazes for the Potter, by Daniel Rhodes, Clinton Book Company, Pennsylvania and New York, 1957, p. 197.

Epoxy - A resin made by polymerization of an epoxide and used chiefly in coating. Also an Adhesive. Encyclopedia Britannica, 1965, Vol. XVIII, p. 463.

Fired-Clay Art Forms - "Objects created by the artist from clay that have been fired in a kiln." Reed, 1976.

Firing - "The heating process that turns the clay into ceramics or pottery." The Off-Wheel Pottery Book, by Raymond Hull and Ida Claire Larden, 1975.

Glaze - "A liquid mixture of ground minerals applied to bisque ware to form the glass-like coating on the surface of the ceramic form during the final firing (glaze firing)." Reed, 1977.

Glue and Adhesives - Substances used for joining objects or forms together. Reed, 1980.

Incising - "Cutting into a clay surface to produce a pattern of design." Step by Step Ceramics, by Jolyon Hofested, Golden Press, New York, 1976, p. 12.

Leather Hard - "The condition of the raw ware when most of the moisture has left the body but when it is still soft enough to be carved or burnished easily." Ceramics, A Potter's Handbook, by Glenn C. Nelson, 1971.

Pyrometria Cone - "Small triangular cones made of ceramic materials that are compounded to bend and melt at specific temperatures, thus enabling the potter to determine when the firing is complete." Ceramics, A Potter's Handbook, by Glenn C. Nelson, 1971, p. 335.

Slab Method - "A hunk or ball of clay that is pounded with the heel of the hand or rolled out to an even thickness with a large dowel or rolling pin." Step by Step Ceramics, by Jolyon Hofested, Golden Press, New York, 1976, p. 12.

Wheel Thrown - "Clay forms made on a potter's wheel." Reed, 1976.

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