San Fernando Valley State College

EXPANDING THE LIMITS OF CLAY
BY THE ADDITION OF FIBERGLASS.

An abstract submitted in partial satisfaction of
the requirements for the degree of Master of Arts in
Art
by
Mercie Butler

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The abstract of Mercie Butler is approved:

Committee Chairman

San Fernando Valley State College

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ABSTRACT

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Mercie Butler
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CHAPTER I
Statement of Purpose

My goal was to add another dimension to the available potentialities for working clay that would change the original characteristics or alter the surrounding space of traditional ceramics. The problem evolved from my previous works in painting and design. I felt that the three dimensional form was much more exciting than the flat surface of the canvas and hoped to somehow break down the division between painting and ceramics. I first experimented with simple distortions of traditionally formed clay objects and then added decorations. I later changed the environment or space of the decorated objects. These experiments still used
decoration as surface treatment and the designs were limited by the wheel and the existing pottery techniques.

The ultimate solution to my problem lay in the use of a new combination of materials, fiberglass and clay. This new material was delightfully flexible with an unlimited range of applicability. The fiberglass approach enabled me to work directly and spontaneously as one does in painting. The results strongly resembled the oils I had done which were quite painterly in expression.
CHAPTER II

Short History of Materials Used with Clay

Adding fabrics to clay has been recorded as early as 1770 at Strasbourg when the innovation of adding lace to porcelain is attributed to J.A. Hannong. The lace was dipped into a porcelain "slip" and dried and fired so that the threads were burnt away but the model of the fabric remained. This method was especially popular at Derby in the early 19th Century. It is also commonly used in modern French and German porcelains. Other records indicate that burlap and cheesecloth are frequently added to clay for various purposes. The use of glass fibers for decorative purposes is also not new. It can be seen in the art of the Egyptians before the time of Christ. In more recent times, Edward Drummond Libbey, a glass manufacturer, displayed a dress made of fiberglass and silk at the Columbian Exposition in Chicago in 1893. Practical uses for fiberglass developed from the extensive research of the Owens Illinois and Corning Glass Companies from 1931 to 1939. Since glass is a form of ceramic material, the blend of clay and fiberglass was a natural one.

Daniel Rhodes, in 1964, began to use the fiberglass cloth in clay as a reinforcement for large
sculptures that would not stand alone. They were rough-textured sandy clay forms and were not glazed. He was fascinated by the strength and resiliency the fiberglass gave to clay. Rhodes used the material largely as a means to produce large forms. I saw in the material the possibility of a freer, less restrictive approach that could help me achieve my goal.
CHAPTER III
Processes and Experiments with Fiberglass and Illustrations

A brief explanation of how fiberglass is made will give one a better idea of how consistent was the selection of this particular cloth as an addition to clay. Fiberglass is glass in the form of fine threads. The fibers look fragile but are actually stronger than steel. The threads can be woven into cloth and are used for many domestic purposes such as insulation, filters, curtains and reinforcements for plastics. The fibers alone can also be used as a strengthener. It is made from silica sand, limestone, soda ash, borax, boric acid, feldspar and fluorspar, or in other words those materials used to make ordinary glass.

The strands are made by allowing melting glass to run through tiny holes in the bottom of a furnace where a spinning drum catches the fibers and winds them on bobbins. If the falling glass is hit in the furnace by a high pressure jet of steam the glass forms into fibers from eight to fifteen inches long.

As we indicated, other fabrics than fiberglass have been used previously. It was found that by adding a fabric for reinforcement the artist was able to increase
the demands on the clay but the fabric usually burned out and lessened the support. The use of fiberglass was an important discovery because under certain firing conditions the support remains and the glass fibers do not leave a void in the clay. Therefore many intricate, light weight, large and previously impossible objects can be constructed.

My first experiments resembled Rhodes' in that I started with thrown bases or hand-built slabs reinforced at the edges with stripes of fiberglass, (see Figures 1 and 2). To these simple shapes I added layers of 7½ ounce openweave fiberglass dipped into a deflocculated slip until the patterns and hollows were aesthetically pleasing. A deflocculant disperses the particles of clay so that less water is required for fluidity. With a low water content, shrinkage and cracking is kept to a minimum. Some sort of alkali must be added to the clay and water to get this result. The most common deflocculants used are sodium silicate and soda ash but greater control is necessary than the use of the water softener "Calgon". One hundred pounds of clay requires 35.0% to 50.0% addition of water and 0.3% addition of Calgon. The flexibility of the cloth gave the sculptures a very organic look and feel. Intricate patterns and caverns could easily be managed. Yarn dipped into the deflocculated slip was added to give texture and internal interest to the
caverns. The yarn burnt out but its shape remained, with a result similar to the effect achieved in the porcelain lace moldings. Unlike Rhodes, who did not glaze his sculptures, I wanted to see the results on the materials under different firings and therefore I experimented with both high and low fire glazes. It is interesting to note that even at 1800 degrees the fiberglass still remains flexible.

If high fired to cone 9 or 10, the fiberglass melts and a series of glass bubbles come to the surface adding an earthy texture which can be quite pleasing on an organic pot. In this case enough clay must be added to the glass cloth so that the object can withstand the lack of reinforcement which occurs when the fiberglass melts. Most of my sculptures were low-fired, however, because of the intricacy and size of the sculptures which required the reinforcement of the fiberglass.

Interested in seeing just how far one could stretch the use of this new method of forming, I tried the massive ball illustrated in Figure 3. A sculpture of this magnitude and design could not be accomplished with the use of clay alone. Layers of clay and cloth were formed over a three foot beach ball, to an approximate thickness of 3/4 inches. An opening was left in the clay to allow internal construction and viewing. When the outside was leather hard, the ball was removed and
stripes of fiberglass and clay were used to create an inside design. A low fire iron wash was applied to the outside and a glossy low fire white glaze to the inside.

The directness of the fiberglass material added to these preformed shapes led the author to a still more spontaneous and intuitive approach. To exploit these possibilities, I began to work on a large wall hanging or plaque, (see Figure 4). Sections of cloth were dipped in the clay slip and worked directly onto a 6 x 4 foot board-canvas. The layers of fiberglass were manipulated until the contours and composition were satisfactory. I discovered that the new substance enabled me to have a sense of greater personal involvement with my work since the formation of the impressions could be much more controlled, due to the nature of the material.

Because of the plaque's size, scissors were used to cut it into seven pieces, each the size of the kiln shelves, before firing. The individual pieces were then thickened to approximately 1/2 to 3/4 inches by painting on additional slip. Again yarn was used to add texture and highlights to the finished "clay-painting". After the bisque firing, five low fire matt and shiny glazes were rubbed into the pieces. A sponge was used to rub away the glaze from the yarn design allowing the clay to show through. Finally, three holes were placed in each
piece so that the pieces could be attached to the walls with nails.
Figure 1
Figure 2
Figure 3
CHAPTER IV
Early Development and Illustrations

As one masters the technical aspects of his craft, the need to progress pushes the artist to experiment and change the too familiar form. My progression was quite typical. In Figure 5, distortion was employed to give a freer more personal expression to a wheel-thrown object. The distortion was accomplished by hand pressure. In addition, a small textured slab was added to the opening for interest. Further distortion is shown in the flower-like object of Figure 6. Here, oxides were rubbed into an incised decoration, but most of the clay was allowed to show through. The addition of the wood stem and backing added a certain vitality to the object and completed the design.

Boxes, open or closed, can frame or create a new environment for a given object. I have a few such examples. A distorted egg humorously inscribed with lettering was enclosed in an open box, (see Figure 7). The symbolic "fence" added an incongruous importance to the trivial statement. A stoneware glaze was applied to the distorted sphere and covered with felt pen lettering and then lacquered. Finally, the open box was constructed
out of wood and sprayed with black enamel.

Another statement utilized a closed box, (see Figure 8). Clay was added to distorted thrown cylinders until the forms suggested embryos. A dark enclosure was necessary for the desired impact. A low fire shiny yellow glaze was used to give the figures the desired effect.

Following the embryo sculpture, a deliberate approach to the grouping and clustering of similar objects was attempted; however a more controlled shape, that of an obelisk, repeated several times was used, (see Figure 9). These obelisks could be placed in many combinations thereby creating different compositions with self-defining environments. This experiment, in turn, led me to the further manipulation of smaller objects which will be discussed in the next chapter.
Figure 5
Figure 8
Figure 9
CHAPTER V

Experiments with Plexiglass and Illustrations

My interests turned to plexiglass because its transparency added an enclosure, but allowed total vision of the ceramics. The use of plexiglass completely changed the attitude with which various subjects could be treated. Now the emphasis could be light-hearted as well as serious. Still interested in grouping and audience participation, I began placing one, two, or three objects into small colored boxes that could be arranged or stacked at will. In Figure 10, objects which were first decorated with high fired slips were then low fired to give a shiny colored surface. They were then enclosed in colored plexiglass. Eight boxes were constructed and all could be assembled into one or many coordinated sculptures. The boxes were assembled by welding sheets of plexiglass cut to size with an acrylic plastic cement. A similar project can be seen in Figure 11.

Figures 11, 12 and 13 show how the addition of another material can alter the space and create a new environment for the sculptures. Whether it improves the original form and adds another dimension is the important question.
Figure 10
CONCLUSION

Many experiments are necessary before one can find an approach that most closely expresses an artist's mode of expression. The search to combine the two disciplines in which I felt most comfortable -- painting and ceramics, led me through the developments discussed in Chapters IV and V. All these experiments were still concerned with ceramic forms in which decoration was employed merely as an enhancement of the surface. However, the discovery of the use of fiberglass completely changed my involvement with clay, enabling a really new approach, since I was no longer restricted by the traditional techniques of the medium. I could work directly, spontaneously, and freely. The imagery could be attained just as it is when one creates a painting. Technically the media worked because, with the reinforcement of the fiberglass, I was able to successfully build and fire sculptures and plaques that were thin, lightweight, uneven and large. A less self-conscious approach was necessary in this approach, one which combined freedom with statement, but with these ceramic-paintings I felt I had found a media that was more comfortably and totally mine.
BIBLIOGRAPHY


