Designing and Production of Original Jewelry and Micro-Sculpture

Dick W. Chandlee

Central Washington University

Follow this and additional works at: https://digitalcommons.cwu.edu/etd

Part of the Art Education Commons, and the Metal and Jewelry Arts Commons

Recommended Citation
https://digitalcommons.cwu.edu/etd/1297

This Thesis is brought to you for free and open access by the Master's Theses at ScholarWorks@CWU. It has been accepted for inclusion in All Master's Theses by an authorized administrator of ScholarWorks@CWU. For more information, please contact scholarworks@cwu.edu.
DESIGNING AND PRODUCTION OF ORIGINAL
JEWELRY AND MICRO-SCULPTURE

A Thesis
Presented to
the Graduate Faculty
Central Washington State College

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Dick W. Chandlee
November 1970
APPROVED FOR THE GRADUATE FACULTY

__________________________
Stephen Bayless, COMMITTEE CHAIRMAN

__________________________
C. Papadopoulos

__________________________
Michael Whitley
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. THE PROBLEM AND DEFINITIONS OF TERMS USED...</td>
<td>1</td>
</tr>
<tr>
<td>The problem.</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the problem.</td>
<td>1</td>
</tr>
<tr>
<td>Importance of the study.</td>
<td>1</td>
</tr>
<tr>
<td>Limitations of the problem.</td>
<td>1</td>
</tr>
<tr>
<td>Definitions of terms used.</td>
<td>2</td>
</tr>
<tr>
<td>Bezel.</td>
<td>2</td>
</tr>
<tr>
<td>Cast jewelry.</td>
<td>2</td>
</tr>
<tr>
<td>Fabrication.</td>
<td>2</td>
</tr>
<tr>
<td>Fence.</td>
<td>2</td>
</tr>
<tr>
<td>Found objects.</td>
<td>2</td>
</tr>
<tr>
<td>Funk art.</td>
<td>2</td>
</tr>
<tr>
<td>Lost materials process.</td>
<td>3</td>
</tr>
<tr>
<td>Lost wax process.</td>
<td>3</td>
</tr>
<tr>
<td>Micro-sculpture.</td>
<td>3</td>
</tr>
<tr>
<td>II. THE INVESTIGATION AND RESULTS OF THE INVESTIGATION...................</td>
<td>4</td>
</tr>
<tr>
<td>Materials used in the investigation.</td>
<td>4</td>
</tr>
<tr>
<td>The record of the investigation.</td>
<td>4</td>
</tr>
<tr>
<td>III. SUMMARY AND CONCLUSIONS</td>
<td>31</td>
</tr>
<tr>
<td>Summary</td>
<td>31</td>
</tr>
<tr>
<td>Conclusions</td>
<td>31</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>33</td>
</tr>
<tr>
<td>TITLE</td>
<td>PAGE</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Piece Number One</td>
<td>6</td>
</tr>
<tr>
<td>Piece Number Two</td>
<td>8</td>
</tr>
<tr>
<td>Piece Number Three</td>
<td>11</td>
</tr>
<tr>
<td>Piece Number Four</td>
<td>13</td>
</tr>
<tr>
<td>Piece Number Five</td>
<td>15</td>
</tr>
<tr>
<td>Piece Number Six</td>
<td>17</td>
</tr>
<tr>
<td>Piece Number Seven</td>
<td>19</td>
</tr>
<tr>
<td>Piece Number Eight</td>
<td>21</td>
</tr>
<tr>
<td>Piece Number Nine</td>
<td>24</td>
</tr>
<tr>
<td>Piece Number Ten</td>
<td>26</td>
</tr>
<tr>
<td>Piece Number Eleven</td>
<td>28</td>
</tr>
<tr>
<td>Piece Number Twelve</td>
<td>30</td>
</tr>
</tbody>
</table>
CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. THE PROBLEM

Statement of the problem. It was the intent of this study to create a series of original pieces of jewelry and micro-sculpture employing new ideas with traditional methods and techniques; (1) combining common gadgets of everyday use into unusual surroundings in order to create a piece of jewelry; and (2) applying new concepts in the manufacturing of jewelry by means of experimental castings.

Importance of the study. This study extended the candidate's ability to see possibilities for the use of common objects in the making of jewelry and micro-sculpture. It enabled the candidate to develop a feeling toward a freer intuitive expression in the making of jewelry.

The study helped to dramatize more sculptural jewelry as compared to the commercial varieties.

Limitation of the problem. The problem involved twelve pieces of jewelry. The designs were determined by the nature of the materials utilized and the desired feeling expressed by these materials. The objects used were chosen by the needs of the candidate for the study.

The function of the designs were designated by the candidate's views of what constitutes jewelry.
II. DEFINITIONS OF TERMS USED

Bezel. "A thin strip of pure silver that encircles the base of a stone and holds it in its setting." (2:15)

Cast jewelry. Casting is a process by which jewelry can be made.

Casting is the thrust of molten metal into an extremely hot mold by centrifugal force, pressure, or vacuum so that it immediately freezes or solidifies into a form that reflects in metal every detail of the wax model. (1:66)

Fabrication. A method of making jewelry by soldering different components together.

Fence. A strip of metal for various construction purposes.

Found objects. Objects collected with the idea in mind that they will be utilized in a piece of jewelry; items such as old coins, leather, photographs, wood, buttons, stamps, etc.

Funk art. In Peter Selz's book, Funk, he describes the movement as follows:

Funk art looks at things which traditionally were not meant to be looked at....Funk has created a world where everything is possible but nothing is probable ....even the idea of permanence has occurred to them. Although neatness or sloppiness is not the issue here, there is a general trend toward greater care in execution and more precision, partly due to a limited amount of recognition enjoyed by the artists, and partly facilitated by the use of new materials. (3:3-6)
Lost materials process. The process by which any combustible material, other than wax, is encased in a refractory material (investment). The material is burned out in a kiln and a cavity left into which molten metal is injected (usually by centrifugal force).

Lost wax process. A form is made in wax then encased in investment; the wax is then burned out in a kiln, and the cavity is filled with molten metal.

Micro-sculpture. A term coined for small sculpture that is made to be either worn or mounted for display.
CHAPTER II

THE INVESTIGATION AND RESULTS OF THE INVESTIGATION

I. MATERIALS USED IN THE INVESTIGATION

Because of the nature of this study there were many materials used in the manufacturing of these pieces of jewelry. A large collection of odds and ends were gathered over a long period of time to make this study possible.

The materials used were selected in such a way as to create the most interest and develop a characteristic desired to present a certain feeling. Through experimentation the following items were selected for use:

2. Coins    10. Brass
3. Glass  11. Silver
4. Imported hardwoods  12. Electrical devices
5. Optical lens  13. Transistor parts
7. Plastic model parts  15. Insects
8. Plastic slide holder  16. Watch parts

II. THE RECORD OF THE INVESTIGATION

The following pages will discuss the creative works. There were twelve studies involved. Prior to the entire study there were numerous experiments carried out in casting unusual objects such as insects and swiss cheese. These objects were cast by traditional processes in traditional metals (gold and silver) in order to direct an association with jewelry.
PIECE NUMBER ONE

In the creation of this piece of jewelry an oval plastic cosmetic container was utilized because of its shape. The cosmetic container was prepared and cast in silver by means of the lost materials process.

Once the oval container was observed in silver it became apparent that its shape might be a problem. It seemed that some contrast would be necessary in the remaining parts due to the languid oval form.

A piece of inlaid hardwood was introduced to develop contrast between the textures of the materials. The wood addition created textural contrast of one kind, but it was felt that something had to be done for impact. Various attempts were made to resolve this dilemma; finally the experiments resulted in the addition of a piece of cast swiss cheese. The interrupted form of the cheese seemed to create greater interest and was attached to the inlaid hardwood backing. The cheese form was consciously cut to match the contour of the oval shape.

Further impact was made by the addition of a baroque pearl for the final accent. The idea of a point within a circle within an oval intrigued the investigator.

Unity of the piece was achieved by the irregularity of the pearl's surface relating to the cheese texture and the pearl's sheen relating to the metal's surface. Silver bead forms utilized as a hanging device completed the piece.
PIECE NUMBER TWO

In the second piece of jewelry two objects of close size, an old coin and the frame of an optical lens test device, were seen to relate; the process of the creation of a piece of jewelry began.

The lens was removed and the coin inserted in the frame. A hole drilled in the handle of the lens holder was used to attach the unit to the background.

The coin's surface texture and visual appearance were altered by the candidate giving an appearance of age as well as suggesting modification by man simultaneously.

The coin was placed in a two-section hardwood setting leaving a space between that created a relationship of positive and negative form. The visual penetration of the form gave depth as well as interaction.

The metal fence enclosed the contrasting forms and was intended to unify the piece. The circle within the square was a basic format.

The wood was held in place by pegs through a silver bar soldered to the fence.

Again repetition of form is noted in the circle to ball shapes. This was used as another unifying device.
PIECE NUMBER THREE

During an experimental adventure the candidate was randomly assembling many unrelated shapes of plastic which ultimately lead to the creation of a piece of jewelry. In this particular study there was no foresight or preplanning regarding the project's outcome; it was pursued until completion achieved.

Many different articles of plastic were assembled varying from plastic spoons, wagon wheels, car bumpers, and other plastic model parts. These pieces held over a burner were twisted into the desired configuration. Among these various plastic objects a minute light bulb was integrated. It was arbitrarily decided to invest this with the rest of the piece and cast whatever remained after burnout. During the burnout process, apparently, the temperature of the kiln caused the glass bulb to contract due to the non-combustible nature of glass leaving a cavity being subsequently filled with silver during casting. A thin silver shell covering almost the entire glass bulb with only a tip of the glass bulb exposed remained.

After the piece was studied it was decided that a solid area of plain metal should be introduced and was attached. The contrast between the complex smaller parts and the large plain form enhanced perception of either plainness or complexity as well as balancing the piece. The
smooth continuous contour was felt to be a stabilizing contrast to the active lower outline. This piece was much more sculptural in total effect and had quite a surprising quality of depth in what was a rather shallow space.

The larger mirror-like curved form reflected the intricate lower portion on its surface achieving unity and the completion of a finished piece.
PIECE NUMBER FOUR

The total piece excluding the stone and its setting was made from plastic car model parts that were transposed from plastic to silver by means of the lost materials process. All of the parts were symbolic of today's high speeds or their control devices. Stop signs, carburetors, wheels, turbin-valves, suspension parts, and exhaust pipes were assembled together in a rhythmic manner showing unity with positive and negative shapes in a three dimensional sculptural approach.

This piece was designed to be worn as a brooch. Therefore, it had been designed so that the texture and color of fabric behind it would show through. This made the three dimensional effect even more pronounced and at the same time helped the open shapes become enclosed forms.

The plastic parts were attached together by fusing them to one another with a small soldering iron. This made changes possible with quick and easy adjustments and left room for future changes without the fear of destroying the basic form.

The linear delicacy of the piece is emphasized by the contrast between thick and thin lines. In addition to this, the preciseness of a cut stone enhanced the effect. Contrast between open form and enclosed form is vital to the piece.
Hepetion in line and form played an important part in the development of this piece of jewelry. A coin was fitted with a bezel, and then attached to a silver bar that followed the contour of the coin. Hardwood shapes had been cut to repeat the curved motif surrounding and enclosing the coin to encourage unity. Depth was achieved by means of sculpting the wood.

The multi-curves on the left perceptually move with a thrust to the right where the rididity of the circle interrupts the movement. A narrow fence bordering the left side adds visual weight helping balance the piece.

The softly defined face on the coin contrasts to the sharper edges. This softness is picked up and echoed in the beads along with their anchoring pins. The regularity of the beads contrasts with the informality developed in the remaining unit arrangements. This juxapositioning of opposites creates interest.

The repetition of curves is stressed by the repetition of the rigid bead posts.

The use of the darker plastic cap in the lower left and the dark bead draw the eye over the piece.
PIECE NUMBER SIX

In this piece of jewelry related wooden shapes serially arranged move on a common axis giving rhythm as well as being practical. The practical intention was in preventing the damage or breakage which often occurs in rigid pieces.

The woods used were Brazilian walnut, rosewood, and ebony. The holes cut in the largest wooden form relieve its expanse. Inside the hole turning beads move counter to the pendulous swing of the wooden verticals. The two beads are from an early Spanish rosary now joined with a new relationship.

The strong verticality is emphasized by the use of brass in contrast with the silver fence containing the right-hand wooden shape. A cast mounting for the faceted stone was soldered to the silver fence.

Rhythm is created in the piece by the transitions between silver to stone, brass to wood.
PIECE NUMBER SEVEN

The piece, nicknamed "The Thumb", was a purely spontaneous piece. A silver fence with a piece of leather combines a brass coin and brass tubing with the cast silver impression of a thumb.

The leather was soaked until all natural oils and salts were removed; then a hole was hammered in the wet leather the size of the silver thumb impression. The leather was then stretched around the thumb impression and placed in the sun to dry.

The silver fence was built around it and attached to the leather by drilling holes and forcing silver pins into the leather.

The coin was suspended from the top portion by a faceted bracket like a stone mounting.

The combination of these different items suggests a rather "funk" oriented piece.

The departure from the usual square or rectangular format enhances the piece. The delineating contour purposely duplicated the exact perimeter of the leather. This irregularity enhances the rigid thumb and coin content.
PIECE NUMBER EIGHT

In this piece the candidate utilized electrical objects. This coupled with an enclosed reflecting plastic and a small flashlight bulb suggests the idea of workable electronic jewelry.

The juxtaposition of items in this piece challenges unity but at the same time maintains complex spatial relationships.

The cluttered activity is important in giving the piece direction; this development produces an electronic approach.
PIECE NUMBER NINE

Bugs, wood, glass, and cast plastic forms make up this piece. The combination of these items developed into what could be considered a vertical sculptural piece of jewelry.

The complete piece had been assembled by silver wire pinning the various parts together. A threaded brass watch winding knob was used in order to suspend an optical eye testing lens over a silver insect cast by the lost materials process. The laminated tips on the wooden pieces were finished off with caps of black shiny plastic that developed a jewel-like finish; this kept the long spear-like shapes from running on without the eye coming to a conclusion.

Important to the composition is the use of wooden shapes curving inward and outward creating movement and direction.

Strong vertical lines contrast with a short direct horizontal movement at top right and bottom left. Containment of the piece and delineation help reduce the control of a dominant vertical development on either side. The frosty edges of the glass find companionship with the single cultured pearl to bring harmony between each other.

The total form composed of all the smaller forms and spaces magnifies the insect's imagery.
The surface treatment of the wood by horizontal saw markings is a repeat of the horizontal pattern on the insect's back.

Every minute element is vital to the whole as unity, balance, contrast, and repetition continue.
Two tendencies began to influence the candidate's work in this piece; the tendency toward non-functional jewelry (not to be worn) and, also, a sculptural quality that enables pieces such as this to be coined a "micro-sculpture".

The small figures on the right are cast from plastic soldiers by means of the lost materials process. The silver figures were soldered into box-like frames giving them a look of separation and containment simultaneously.

The brass color of the coin had been carried out in the two vertical bars on the right side of the piece so that there would not be a dominance of this color to distract from the over-all design.

A large wooden section was placed off-center to help balance the piece and make it possible to inlay the coin. A small rubber spider was cast into silver and placed beneath the coin to reduce the coin's impact.

The hardwood backing was chosen because of its dark portion at the left; this created an off-setting of positive and negative values of light and dark between the left side and right side of the piece.

The dynamic contours are contained by the frames and the general geometric format. The central position of the circle assists perceived stability.
PIECE NUMBER ELEVEN

Micro sculpture represents that type of ornamentation that can be placed on something for decorative purposes. The piece was not made to be worn but its scale and weight would qualify it for such a purpose.

Although the piece is a mere 1/1/4 inches by 2-1/2 inches the architectural qualities of the design produced a feeling of magnitude.

The box fence was made up of fabricated silver with the remainder of the piece made from plastic objects cast by means of the lost materials process.

The vertical lines within the circle produce a rigid format in contrast to the freedom of the circle.
"Grasshopper Under Glass" was a purely experimental piece combining castings of material objects with an optical distortion provided by a glass dome.

First, a dead grasshopper was cast using the lost materials process. A small plastic box was cast in silver and inlaid with wood; the whole piece was suspended using stilts made from silver wire. This was placed on a round block of hardwood slightly larger than the rim of the glass dome.

The dome was made by breaking the stem from a glass and sanding the rough edges, polishing with a white diamond compound on a buffing wheel and, then, finishing the job with jeweler's rouge. At the point where the fracture occurred there is a concave area that caused distortion of the piece when viewed directly above. This added interest to the piece plus gave it a quality all of its own.
CHAPTER III

SUMMARY AND CONCLUSIONS

I. SUMMARY

As this study proceeded there began a systematic change in the design of the jewelry. The study provided the opportunity to explore a different concept in design that would enable jewelry to become more than just an object for personal adornment. The concept of designing a particular piece of jewelry that could either be worn or utilized as small sculpture made this new concept apparent.

The use of different objects in a piece of jewelry enhanced the interest and provided a more personal engagement between the piece and the viewer.

II. CONCLUSIONS

The use of found objects and experimental castings are only one portion of the total picture; the candidate discovered that the procedure of assembling the various collectic items utilized was of vital importance to the finished product. To develop a really unique item for either adornment, decoration, or pleasure, the designer must first have an open mind and a sound design.
Though processes and techniques new to the candidate were utilized there still remains room for further exploration in the field of jewelry making.
BIBLIOGRAPHY
BIBLIOGRAPHY

