SILVER TEAPOT - A JOURNAL/JOURNEY

SENIOR HONORS THESIS

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This project was undertaken principally as a learning experience. I had little idea, when I began, how much of a learning experience it would be.

On a teapot there is a lot of precision soldering, fitting, and on the particular teapot that I designed, some smithing problems that I had not anticipated.

The silver itself was, for me, a very exciting part of working on this piece. Because silver is such an expensive metal, the first hammer stroke of a piece is very frightening; but, the finished results can be extremely rewarding.

I will try to explain why I choose to work in metal and what it means to me.

The ideas that continue through my work are internal comparisons: line to space, smooth to rough, rounded forms to squared forms, mass to line, etc. These comparisons usually originate from sketches made of natural objects (such as clouds, the human body, plants, etc.) or from sketches of geometric forms and lines.

Metal, along with stone and pieces of wood seems to be a successful medium for the comparisons that interest me. I also enjoy the physical tasks involved with metal: sawing, sanding, soldering, smithing, etc.

I became interested in metal as a medium through an interest in personal ornamentation. The jewelry became more sculptural and I began thinking of the pieces first as sculpture and secondly as pieces to wear. I then began making functional objects that also functioned as sculpture.

This teapot is to be more of a sculptural piece than a functional piece. The actual making of it was important to me in learning how to
solve design problems as well as technical problems. It was indeed a
learning experience.
11-17-75 - One piece of 16 gauge sterling silver sheet, 8" square ordered. $82.00

11-20-75 - The silver arrived from Cincinnati Gold. An 8" disc was cut from the silver and the edge was sanded smooth. The costs of Prip's flux were applied and the piece was annealed. The flux was very opaque and the color of the metal was difficult to see while annealing. The metal was then placed in the acid and cleaned. Concentric guide circles were placed on the disc using a compass. The circles assure even hammering. The piece was then ready to be hammered.

11-21-75 - The bottom piece of the teapot is going to be formed by compressing the metal from the outside over a "T-stake". (See diagram 1) The first round was completed. The piece was then annealed (with a coat of flux over it to prevent firescale) and then blocked with a leather mallet over a "mushroom stake". The second round was completed. Note: This sequence is used every round until the piece is completed: The piece is hammered, annealed, cleaned, blocked into shape, guide circles reapplied, and the piece is ready to hammer again. To avoid repetition, I will not name each step of this process, but it will be understood by the reader that this process is used each time it is indicated that a round has been completed.

11-24-75 - The third and fourth rounds were completed. I have been having a lot of difficulty determining the temperature of the piece while annealing. The flux is so opaque, the color of the metal
is not really visible. I am seeing some stress marks in the metal which I am afraid are going to develop into cracks. I am going to wait until the Allera-Flux arrives before I continue.

12-11-75 - The flux arrived from Allcraft. It makes annealing 100% easier. Rounds #5 and #6 were completed. The stress marks don't seem so obvious.

12-13-75 - Rounds #7 and #8 completed.
12-15-75 - Round #9 completed.
12-16-75 - Round #10 completed. The lower third of the bottom piece is coming into shape. I am concentrating now on the upper two-thirds of the bottom piece.

1-6-76 - Round #11 completed.
1-8-76 - Round #12 completed.
1-13-76 - Rounds #13 and #14 completed.
1-15-76 - Round #15 completed.
1-17-76 - Round #16 completed.
1-20-76 - Round #17 completed.
1-22-76 - Round #18 completed. The bottom piece is now nearly into form.
1-23-76 - Round #19 completed.
1-24-76 - I am now working on the bowl that will be the lid. I stretched this bowl from a 4" square of 14 gauge silver two years ago. I am finishing the forming of the lid by making the top edge of the bowl square with a leather mallet over a "T-stake". (see diagram 2)
1-26-76 - I have begun planishing the piece that is to be the lid of the teapot. I completed 2 rounds of planishing on the lid.
1-27-76 - Rounds #3 and #4 planishing completed on the lid using the round end of the hammer.

1-28-76 - Rounds #5 and #6 planishing completed on the lid using the round end of the hammer.

1-29-76 - Round #7 planishing completed on the lid using the round end of the hammer.

2-1-76 - Top third of bottom piece squared to meet lid evenly. It is a little smaller than the lid, but will probably meet evenly when planished. (The metal stretches a small bit when planished.)

2-5-76 - First round of planishing on the bottom piece of teapot completed using the round end of the hammer. (see diagram 3)

2-6-76 - Round #2 of planishing on bottom piece of teapot completed using the round end of the hammer.

2-9-76 - Rounds #3 and #4 planishing completed on bottom piece using round end of the hammer.

2-10-76 - Round #5 planishing completed on bottom piece using round end of hammer.

2-12-76 - Round #6 planishing completed on bottom piece using round end of hammer.

2-14-76 - Round #7 planishing completed on bottom piece using round end of hammer.

2-17-76 - Round #8 planishing completed on bottom piece using flat end of hammer.

2-18-76 - Round #9 planishing completed on bottom piece using flat end of hammer.

2-19-76 - Round #8 planishing completed on lid using flat end of hammer.
2-20-76 - Round #9 planishing completed on lid using flat end of hammer.
3-2-76 - Round #10 planishing completed on lid using flat end of hammer.
3-4-76 - I stretched the spout out from the inside of the bottom piece.

(see diagram 4)

3-6-76 - Top area planished again with round end of hammer. (around the spout area) Planished with flat end of hammer again, also.
3-8-76 - The top edge of the bottom piece was cut off to make it even.
The top edge was filed and sanded to make smooth.
3-9-76 - The bottom of the bottom piece was flattened on a flat stake to give it a setting surface. (see diagram 5)
3-12-76 - The edge of the lid cut, filed and sanded to give a smooth edge.
I ordered the silver for the edges where the lid and bottom meet. I ordered a 4" by 3" piece of 16 gauge sterling silver.
$56.00
3-17-76 - The silver arrived from Cincinnati Gold.
3-23-76 - I began sanding the surface of the bottom piece. I made a sandblock with a small block of wood to hold the sandpaper. I started sanding with 240 grade sandpaper.
3-26-76 - Continued sanding bottom piece with 240 grade sandpaper.
3-27-76 - Continued sanding bottom piece with 240 grade sandpaper.
3-28-76 - Continued sanding bottom piece with 240 grade sandpaper.
3-29-76 - Continued sanding bottom piece with 320 grade sandpaper.
3-30-76 - Continued sanding bottom piece with 320 grade sandpaper.
3-31-76 - Continued sanding bottom piece with 400 grade sandpaper.
4-1-76 - Continued sanding bottom piece with 400 grade sandpaper.
4-2-76 - Continued sanding bottom piece with 400 grade sandpaper.
4-3-76 - Continued sanding bottom piece with 600 grade sandpaper.
4-4-76 - Continued sanding bottom piece with 600 grade sandpaper.

4-5-76 - Applied steel wool finish and 4/0 emery paper finish to bottom piece.

4-6-76 - Began sanding the lid with 220 grade sandpaper.

4-7-76 - Continued sanding the lid with 240 grade sandpaper.

4-8-76 - Continued sanding the lid with 320 grade sandpaper.

4-9-76 - Continued sanding the lid with 400 grade sandpaper.

4-10-76 - Continued sanding the lid with 600 grade sandpaper.

4-11-76 - Steel wool finish and 4/0 emery paper finish applied to lid.

4-12-76 - Concentric rings made for inside closure. One is to be soldered to the lid and one is to be soldered to the bottom piece. These rings make the lid fit tight against the bottom piece. The rings were made by cutting long narrow strips, bending them round, soldering them shut, and then sanding both edges flat. The rings were then sanded and polished. (see diagram 6)

4-13-76 - Pieces were cut out for the surfaces that meet on the lid and the bottom piece. These pieces were cut about 5/8" large all around in case they slip during the soldering operation. I began sanding these pieces with 220 grade sandpaper.

4-14-76 - I finished sanding the top and bottom pieces with 220, 400, and 600 grade sandpaper. The holes for pouring were drilled into the bottom piece.

4-15-76 - The rings were soldered onto the surface pieces that will meet. These rings had to be soldered on precisely with no slipping or the lid wouldn't meet evenly with the bottom. The soldering went
very well. The edges were then filed to fit and then sanded and polished.

4-16-76 - The surface pieces are now ready to solder to the bottom piece and to the lid. The surface pieces were wired on so that when heated the two pieces would pull together, solder completely and be perfectly flat when finished. The soldering of both the bottom piece and the lid went extremely well. The lid fits onto the bottom piece nearly perfectly.

4-17-76 - The outside edge of both the bottom piece and the lid were filed so as to leave a small edge all around. These edges were then sanded and polished.

4-18-76 - A hole was drilled in the front of the lid for a steam vent. A small piece of tubing was then soldered on over the hole to make a place to grasp the lid when opening it.

4-19-76 - The flanges at the back of both pieces were filed to fit the tubing for the hinge. The tubing was cut to make the three knuckles for the hinge. These pieces were also sanded and polished.

4-20-76 - The flanges for the hinge were given a final sanding and polishing. The lid and bottom piece wired together to prevent slipping while soldering the hinge. A piece of silver wire is fit through the tubing to prevent slipping while soldering. The piece was set up with a piece of not paper between the flanges to prevent them from soldering together. The hinge was then soldered with two knuckles of the hinge soldered to the bottom piece and the middle knuckle soldered to the lid. After soldering the knuckles had to be sanded slightly to make the hinge work easily. (see diagram 7)
4-21-76 - The fitting for the handle was constructed out of 18 gauge silver. The fitting consists of a small box that is soldered to the back of the pot. The handle will then slip into the fitting and will be secured into it.

4-22-76 - The fitting for the handle was filed to fit the contour of the pot. It was then sanded and polished. The handle was cut out of a piece of amarynth wood.

4-23-76 - When I was fitting the handle today the handle cracked. The wood seems rather brittle. I started over and cut a new handle.

4-24-76 - The second handle cracked after it was finished. The handle seems to be too heavy for the pot anyway. I am going to use a piece of ebony instead. The amarynth is too brittle. I have changed the design of the handle, also.

4-25-76 - I finished fitting the handle so that it would meet flush to the fitting. I started the final sanding of the handle with 240, 300 and 400 sandpaper.

4-26-76 - I finished sanding the handle and started applying the Danish oil. I have given it four coats of oil. The finish on the handle looks nice with the pot.

4-27-76 - I raised the firescale on the pot today. This is done by heating the pot and then putting it in acid. This was done eleven times. The pot was then buffed with Tripoli and then buffed with rouge. It came to a nice high polish. The handle was then pegged into place with a silver wire. The center of the hinge was then secured. The hinge area and the handle area were given a final buffing with rouge.
4-28-76 - The teapot was mailed today to Connecticut for the Sterling Silver Design Competition.

5-18-76 - The teapot was selected along with 76 other entries out of a field of 218 entries, for exhibition at the Lever House in New York City.
List of Terms

acid - Used to remove the oxidation from the surface of the metal and to make the metal chemically clean. I use Sporex which is a mild acid solution.

anneal - To free from internal stress by heating and cooling gradually. If the metal is not annealed before hammering it becomes brittle and cracks. Silver is annealed to a dull red in a totally dark room. If it is heated to a higher temperature, the structure "locks in" and is not malleable.

block - To even up the form of the piece with a leather mallet after hammering.

firescale - Impurities that come to the surface of the silver through repeated heatings. Firescale is removed by heating and bringing a layer of fine silver to the surface when the piece is all polished.

flux - A substance used to make the solder adhere to the metal. Flux prevents oxidation and also prevents firescale.

gauge - A standardized system of determining the thickness of metal. The higher the number, the thinner the metal. For example, 14 gauge is much thicker than 18 gauge. Most commonly used gauges are 14, 16, 18 and 20.

grades of sandpaper - The most commonly used grades of sandpaper used in metalwork are 240, 320, 400 and 600. As the numbers increase the grit is finer.

hammer - There are many different shapes of hammers for different purposes in smithing. The hammers must be polished to a mirror finish.
planish - A polishing process using a small, highly polished hammer to hammer out larger hammer marks.

rouge - A polishing compound that burnishes the metal. Used for the final step in polishing.

round - Used to describe going over the entire piece one time with hammer strokes.

stake - (mushroom stake, T-stake) Different shaped pieces of steel over which the metal is hammered and shaped.

Tripoli - A polishing compound used to remove fine scratches from the metal.
diagram 7

soldered here

soldered here

paper inserted here