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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

FOR THE TABLE

By

Donald A. Stuart

July, 1981

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## INTRODUCTION

The study of hollowware techniques was extremely limited while I was an undergraduate at the Ontario College of Art in Toronto. During the subsequent years and while I was teaching at Georgian College in Barrie, Ontario, the fascination for hollowware developed with the making of a few pieces. In 1978, I was commissioned to do a sterling coffee service and sterling tea service for the Royal Philatelic Society of Toronto. This renewed the overwhelming enchantment with hollowware.

Simultaneously I realized that today, in Canada, hollowware as a craft is virtually non-existent in spite of a glorious heritage.

In the midst of this came the granting of a sabbatical leave from teaching so I could study more advanced techniques at Rochester Institute of Technology.

In this report, I wish to share some of my thoughts on my thesis work. Included is an explanation of the inlay technique that I have incorporated into the pieces. For interest, there is a brief survey of Canadian silver.

There are many competent texts written on Canadian silver. I feel that it is not necessary in the concept of this thesis report to expand on this history. My intent is just to introduce this broad topic in order to give some understanding of my heritage.

The views expressed, except where noted, are my own and therefore are open for discussion.

## BRIEF SURVEY OF CANADIAN SILVER

In early Canada most homes had items of domestic silver. The needs of the Church were also great so the silversmith was one of the earliest arrivals in the New World.

One of the major problems however, was the lack of raw material. From the beginning of the seventeenth century, with the permanent settling of Canada, until the middle of the nineteenth century when the rich silver mines were developed, (Canada today leads the world in silver production and is third in gold and platinum and fourth in copper) the silversmith's resources were old silver objects and coins. One interesting aside was that in the French regime, playing cards were issued for a time as money since silver coins were in such short supply.

During the French regime, 1608-1759, the position of the silversmith must have been relatively secure. They were a necessary member of the community, commanding great respect and often holding public or church office. A census of 1744 lists eight working silversmiths. This at a time when the population was about 16,000.

Initially items in silver were imported from France. The first Canadian silversmiths came from France but by 1700 there were some that were Quebec-born and apprenticed. The work produced by these craftsmen rivaled European both aesthetically and technically.

Unfortunately, very few domestic articles have survived, since in time, they were reworked. The most spectacular existing examples of this era are liturgical silver and although they do not relate to my thesis, some photographs are included for interest.

Halifax, Nova Scotia was settled in 1749 by England and soon became a major center for silver production. It is reported that Paul Revere may have taken his 2nd Degree in Masonry there.

Following the Treaty of Paris, 1763, with Canada being ceded to England, British tastes in domestic silver prevailed. The strong French tradition and design, however, were maintained within Quebec, especially in the Catholic Church.

The American Revolution signalled one of the greatest population and cultural growths in Canadian history. The Loyalists, who were mainly the more wealthy middle and upper classes, fled from the United States. Many silversmiths were part of this exodus, bringing with them the British tradition but with an American style to their designs. This stylistic influence is mainly evident in the Maritimes, where most of the Loyalists settled.

The combination of these three influences developed a style of silver that was decidedly unique. Some of the greatest names in Canadian silver span the time from the middle of the eighteenth century to the early nineteenth century when all three styles prevailed. Silversmiths such as François Ranvoyzé (1739-1819), Pierre Huget dit Latour (1749-1816) and Robert Cruickshank (c. 1750-1809) are a few of the foremost names.

Silver ornaments for the Indian fur trade were made in vast quantities from the middle of the eighteenth century. Items such as brooches, buckles and gorgets became major production items for the Quebec silversmiths until the mid-nineteenth century. Comparable perhaps to costume jewelry today, nonetheless

these items represent a notable phase in Canadian history. According to a "Standard of Trade" list for 1795: "one beaver pelt could be traded for any of the following: 2 silver crosses, 6 small silver brooches, 24 hawkbells, 2 ostrich feathers, 1 small brass kettle, 8 knives or 2 hatchet heads." 1.

By 1850, Canada's growth in population was incredible, growing from the 16,000 in 1744 to 2,500,000 in 1850. The silversmiths, of course, did benefit from this due to the growth in churches' and in domestic needs. The government officials and the professional and merchant classes were also great patrons of the silversmith. This, indeed, was the golden age of silversmithing in Canada. Most communities throughout Upper Canada (Ontario), Lower Canada (Quebec) and the Maritimes had their own silversmith producing utilitarian items as well as trophies and presentation items.

Unfortunately, newer methods of production such as electroplating and die stamping brought a decline since hand-wrought silver just couldn't compete. These methods produced highly decorative works, relatively quickly, using lesser material such as copper which were then silver plated. The end product was therefore much less expensive and available to more people.

By the beginning of the twentieth century, the traditional method of silver production was no longer a force in the field of applied arts. This, of course, was not unique to Canada. However, firms such as Henry Birks and Sons and Burke and Wallace did keep some of the hand-crafted traditions alive. Most of

1. N. Jaye Fredrickson, The Covenant Chain (Ottawa, 1980), p. 93.



their skilled workers, however, are today brought from Europe.

More people, fortunately, are now looking to the artisan as someone who can produce a unique item. Sensing this renewed interest in hand-crafted hollowware (from the aesthetic as well as the investment aspect), I am convinced that this is where my future lies.





French Style

Lambert dit Saint-Paul, Paul  
(1691-1749)

- t. Candlesticks, c. 1725  
(height 8")
- m. Porringer, c. 1730  
(6 3/8" diameter)
- b. Monstrance, c. 1735  
(height 17 1/2")



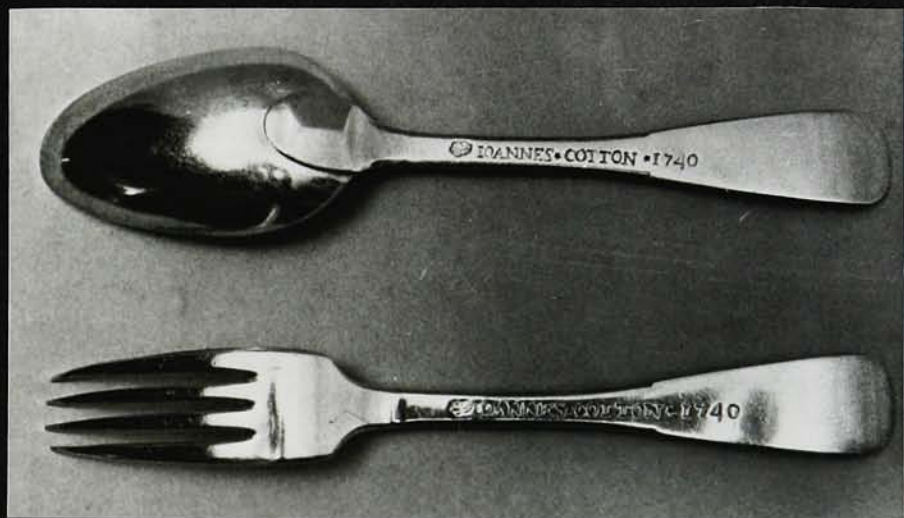


### French Style

- t. Candlesticks, c.1735, Pagé dit Quercy, Jacques (1682-1742), height 8½"
- b. Spoon, c.1725, Pagé dit Quercy, Joseph (1701-1730), length 11"

The work is decidedly French Canadian since it is heavier weight and thinner gauge silver than the English style.





#### French Style

- t. Écuelle, c.1730, Paradis, Roland  
(1696-1754), 6 5/8" diameter
- m. Incense-boat and Spoon, Censer, c.1755  
Delezenne, (c.1717-1790), height of  
incense-boat 3", height of censer 9"
- b. Spoon and Fork, 1740, Cotton, Jean  
(-1725/1744-), length of spoon 7 7/8",  
length of fork 7 5/8"

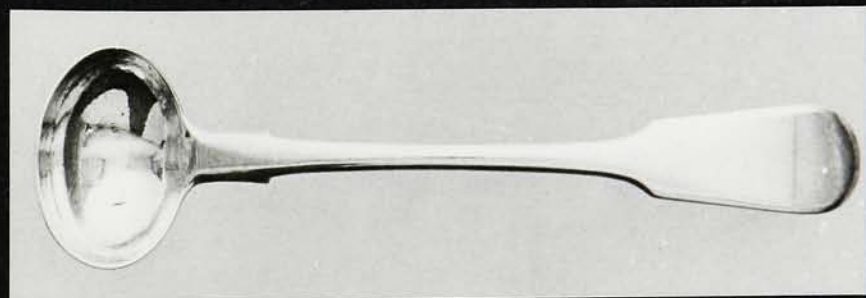
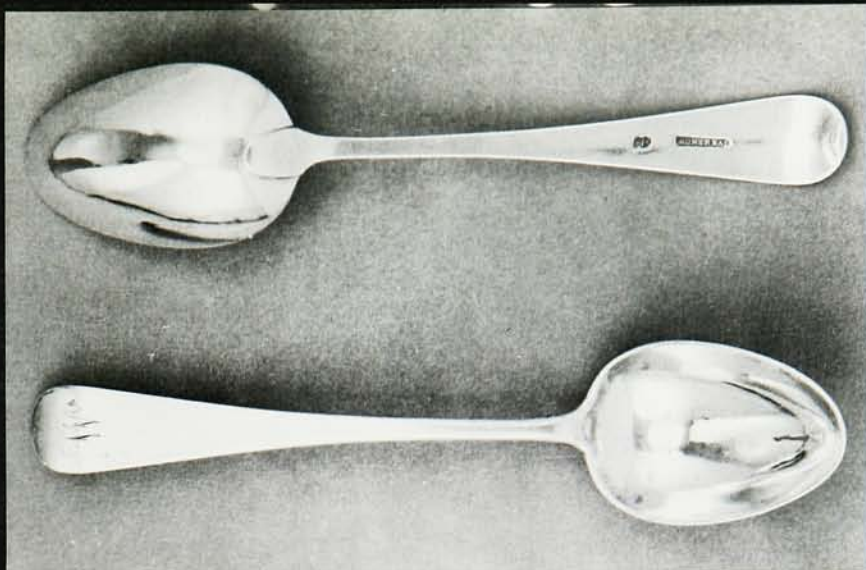


#### English and American Influence

Teapots, c. 1802, Cruikshank, Robert (-1774-1809)

The advent of tea as a popular beverage came with the English regime. The teapots made in Quebec, such as these, were made in the English Neoclassical style. These pieces would have been made from imported rolled sheet silver since there were no rolling mills in Quebec at this time. This made a dramatic impact on the Canadian silversmith who could now work more easily handled thin sheets of silver rather than hand hammering out silver ingots to form the sheet.





#### English and American Influence

- t. Dessert Spoons, c.1790-1800, Cruikshank, Robert, length 7"
- m. Tablespoon, c.1820-30, Amiot, Laurent (1764-1839), length 8½"
- b. Saltspoon, c.1825, Sasseville, Joseph (1790-1837), length 3 7/8"

The fiddle pattern was of French origin and was popular--without the spurs and with an oval bowl--in the latter part of the eighteenth century. The pattern with spurs was most popular from 1810 to 1835 in England and the United States. The Amiot spoon is distinctively French Canadian with a heavier guage of silver.

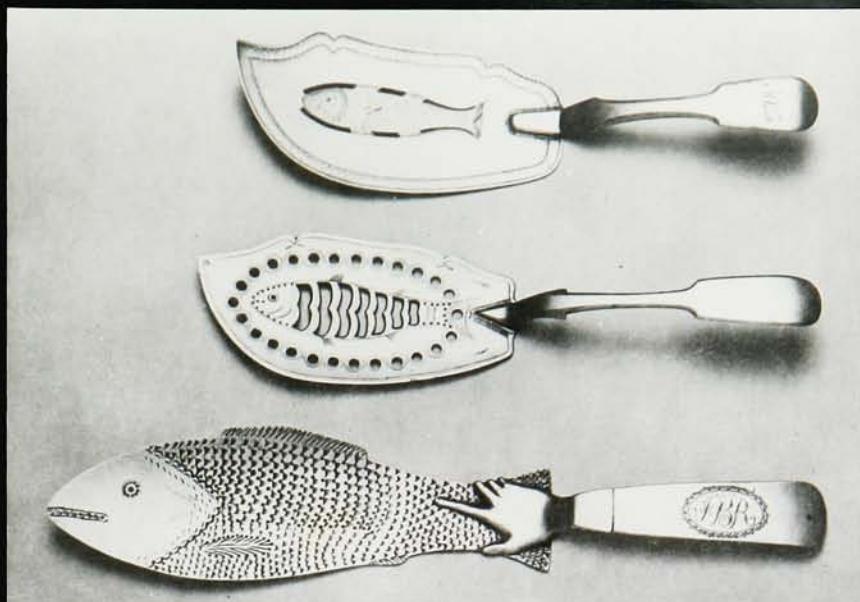


#### English and American Influence

- t. Helmet Creamer, c.1800, Brundage, Jeremiah,  
(1760-1816)
- b. Écuelle, c.1805, Piquette, Jean Baptiste,  
(1779-1813)

The creamer was made in New Brunswick by a Loyalist who left New York State in 1783. It has the flair and elegance of the British style of the early nineteenth century.

The écuelle is rather unusual as it seems to be copied from the traditional American porringer with the bulging sides and contracted rim. Compare this to the ones shown previously. The handles are different too, as they are an adaptation of the crown handles which are more typical of the porringer. With two handles, it is an écuelle.

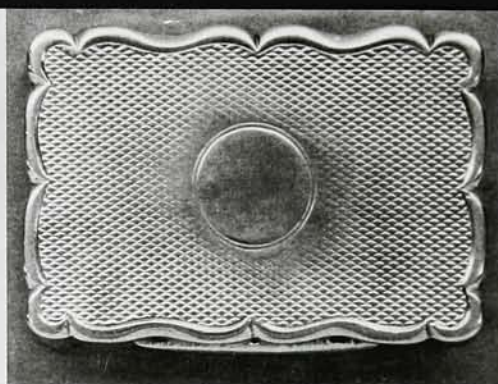


#### Later Styles

##### t. Fish Slices

- a. Delagrave, Francois, (-1816-1831-)  
10" long
- b. Ramage, John, (-1851-1869)  
10½" long
- c. Polonceau, Henri, (1766-1828)  
13 ¾" long
- b. Eperne, c.1830, Mignowitz, Henry, (1790-1865)





#### Later Styles

- t.l. "Intercolonial" Challenge Cup, 1862,  
Newman, William, (1829-1885)  
t.r. Trophy, 1872, Mark of Savage and Lyman  
b. Snuff Box c.1835-50, Morand, Paul,  
(1784-1854)



Indian Trade Silver

- t. Portrait of Joseph Brant, the Mohawk Chief, wearing a gorget, armband and military decorations. These were presented to him by King George III in recognition of his assistance to the British forces during the American Revolution.
- b. Crown, Huguet dit Latour, Pierre, (1771-1829)



### Indian Trade Silver

Various brooches, earrings and a headband by unknown makers.





Indian Trade Silver

- t. Crescent Gorgets, Cruikshank, Robert  
 b. Cradleboard Cover, Huguet dit Latour

## TECHNIQUES

Silver as a material is practical, easy to work with, durable and beautiful to look at. The equipment necessary to work it is relatively simple.

My hollowware follows the traditional methods of manufacture already well noted in various texts. For this thesis I have tried to use many of them, such as raising, seaming and forging.

For the past number of years I have incorporated stone inlays fairly extensively into my work, developing a technique that works well for me. I have yet to find any written documentation on this process because most texts deal with metal inlay.

Inlay is a metal technique used in a variety of ways by many cultures over the centuries. In dictionary terms, to inlay is "to embed a thing into another so their surfaces are even." The recent exhibition of Tutankhamun treasures in North America featured one form of inlay which some historians refer to as 'cloisonné encrustation', in which "flat semi-precious stones are cut to the required shapes and fixed with cement in the compartments formed by strips of gold soldered on to a gold foundation." <sup>2</sup>.

This is basically the technique that I am using and, although the actual process is not very difficult, it requires precision.

2. Milanda Vilímkova, Egyptian Jewellery (London, Toronto, 1969) p. 51

Using a pendant or a cuff link as an example, a box form (like a shoe box lid) is made from strips of metal and a back sheet. The partitions or cloisons are then soldered in place according to the design. Care should be taken that they are set as close to right angles to the base as possible, thus making it easier to set the stones.

At this stage I find it easier to totally finish the piece, except for the face. This generally will ensure that there are no flaws that are difficult to repair when the stones are set in. Protection is given to the polished surfaces with masking tape.

Now the inlay material can be cut. By taking a rubbing of the surface using thin paper and a soft pencil, one can get an accurate pattern of the shapes needed. These are cut out and glued to the material. Softer materials, such as wood and ivory, can be cut out with a coarse jeweler's saw, then filed or sanded to fit. The minerals are easiest to cut and form with a minimum of lapidary equipment, a diamond saw and wet carborundum wheel. Pre-cut slabs of various stones are generally available at local 'rock shops' or through mail order. I prefer to select this material personally, because most stones vary so much. Often I can design a piece around the stone formation.

Lacking lapidary equipment would mean, as I have done many times in the past, taking a hammer and smashing the stone slab hoping to end up with a suitable piece to chip, file and/or grind to fit. Of course, this only works with the softer stones.

The process of fitting the inlay is very precise and it is imperative that the pieces fit with the smallest gaps

possible. They must also be set deep enough so that, in the finishing process, they are not ground completely away. When the pieces are beginning to fit, I trace around the edge with a sharp pencil to show how deep it is. At this stage I find it best for the pieces not to fit flush to the surface, since it is easier to take them out while cutting the others.

I use epoxy glue to set the inlays, mostly the five minute type. By colouring the epoxy to closely match the inlay, any minor discrepancies will, for the most part, be camouflaged. The colourants, which are the same as those used for colouring plastics or fiberglass, are readily available from craft or marine suppliers. In some cases, the epoxy can be coloured with the fine dust of the material being inlaid which gives a perfect colour match.

I allow the epoxy to thoroughly cure for at least a day and then grind off the excess down to the silver cloisons. Since the lapidary wheels are round, I grind the inlay down as far as possible then do the rest by hand with progressive grades of wet and dry sandpaper.

For the final polish I use tin oxide or equivalent and the lapidary polishing wheel or a hard felt buff in a flexible shaft. Then I remove the masking tape and do an all-over final polish with rouge on a buffing wheel.

Each step is done in sequence; i.e., all the glueing is done before grinding and the whole piece is ground at once. I have never had a problem working with the varied hardnesses of woods and stones, but it is wise to have an even distribution of hard and soft materials.

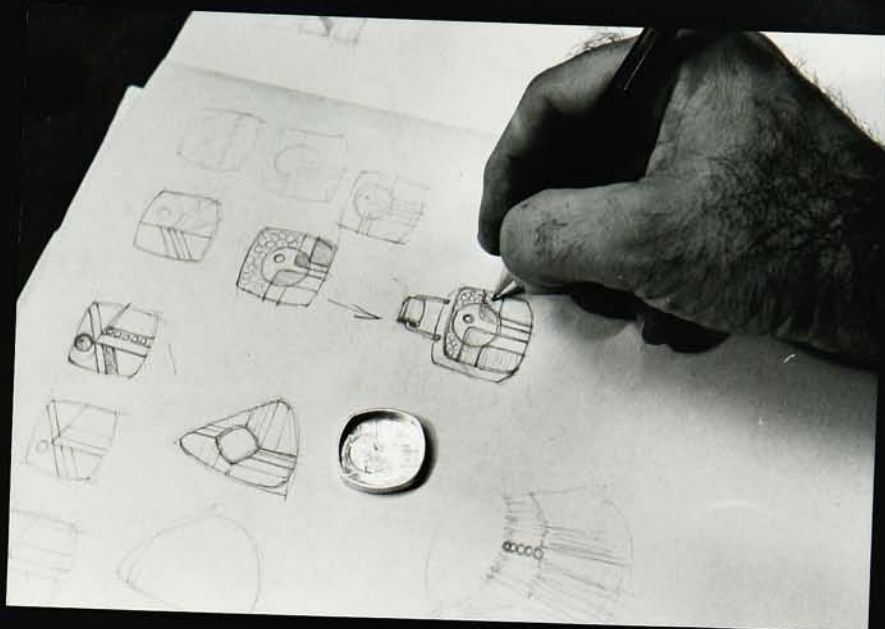
For woods, I have always used hardwoods for inlay and, so far, there has been no problem with shrinkage or cracking.



Ebony and rosewood, for example, are extremely dense and oily so they pose no problems. For added insurance, I usually coat everything well with furniture oil just before the final polish.

Curved surfaces require a bit more patience. To take the inlay beyond a flat surface is very exciting, especially when using materials that react with the light such as opal or labradorite. The sweep of inlay on the lid of the tankard is particularly pleasing to me.

Technically, this inlay process is quite simple, and the results remain similar to those created centuries ago.



# THE INLAY PROCESS

- t. Resolving the Design
- b. Soldering in the Cloisons



t. Cutting the Inlay Materials

b. Inlay Materials Ready to Set



t. Glueing in the Inlays

b. Grinding off the Excess





The Finished Pendant

## DESIGN

I feel my greatest sources of inspiration for design come from Britain and Scandinavia, where hollowware forms of today are practical and plain, yet very elegant.

I prefer things to be simple and refined. Elaborate ornamentation and detail such as you get from chasing and repoussé, may disguise good design and craftsmanship. For me, simplicity reveals. Technically, of course, everything must be perfect.

It was reassuring that my philosophy was shared by Misha Black, the prominent British designer who told us:

To work effectively as a designer two things are, I believe, essential. Firstly, a real grasp of the technicalities involved so that one becomes truly and passionately professional, and secondly, absolute honesty. Slovenly inept design is an abomination and sloppy self-deception is equally disagreeable. 3.

Design is paramount--the most important aspect of any piece. It is easy to learn a technique since even the most difficult can be mastered with practice. Most people can appreciate something that is technically well made. Design is more difficult to appreciate. So many factors enter into a person's concept of good design: education, environment, culture and personal taste. Design, therefore, is not a simple matter yet it is what makes one's work unique.

I spend a great deal of developmental time on paper resolving as many of the technical problems as I can foresee.

3. Professor Misha Black, Address to the Graduates of the Ontario College of Art (Toronto, May 21, 1965)

I spend even more time on resolving the design. In all cases, three-dimensional models were made for each piece to ascertain proportions. To me, this is the easiest, fastest, and surest method of solving a design problem to ensure the final result matches my expectations or, hopefully, those of a client. This is sometimes quickly resolved or, as in the case of the candelabra, many agonizing weeks were spent on sketches and models before the final form was established.

The embellishment of the pieces with stone inlay was for me a tie with my earlier work--mainly jewelry. By incorporating inlay into hollowware, I was able to explore this technique further.

With jewelry, the inlay had been the total piece. With the hollowware it had to be an accent, yet it had to be well incorporated so as not to seem added. Another design problem.

The square format of the pieces came out of my wish to develop forms that would present a technical challenge. I felt confident with the cylindrical form and wished to push my skills further. The tankard was so exciting for me that the pieces I created after it followed the same design format.



THE WORKS



PUNCH LADLE

- sterling silver, 14K gold
- laminations of rosewood, copper ore, sodalite, jade, ivory and silver ore
- 3" x 16"

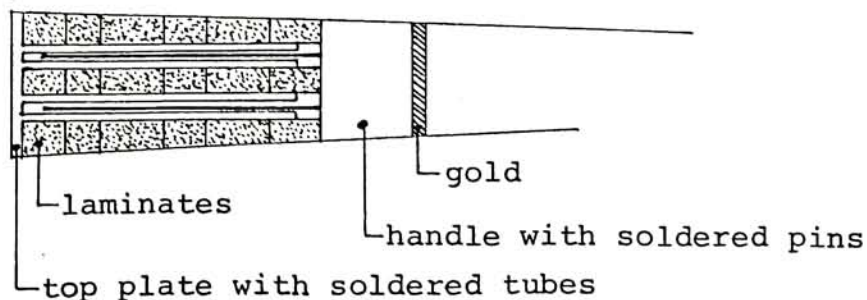
### Punch Ladle

This was done as a companion piece to an earlier serving spoon. The latter was forged from one piece of silver; whereas, the ladle combines the raising of a bowl with the forging of a handle.

The bowl was left with its planished finish whereas the handle was sanded smooth for contrast. Visual interest was created by adding the forged ripple in the handle and the stone laminations.

The laminations were secured by means of a pair of pins soldered to the handle which were inserted snugly into tubes soldered to the top silver plate. Holes that would accommodate the tubing were drilled through the various laminates. The whole was assembled with the aid of epoxy. When set, the laminations were ground down to one surface.

The slice of 14K gold was an accent. (It was also added to facilitate the thickness of silver necessary to accommodate the lamination.)





SALT AND PEPPER SHAKERS

- sterling silver
- inlays of ebony, silver ore, copper ore, ivory, jade and brown coral
- 3" x 1 $\frac{1}{4}$ " x 1"

Salt and Pepper Shakers

This is the first of the square pieces. With this I attained the precision of a matching pair and also achieved an even, flat, surface after bending the form.

This was also the first time I set inlays without the silver cloisons separating the areas. The result pleased me.



TANKARD

- sterling silver
- inlays of various agates, rosewood, ebony, cocobola, silver ore, copper ore, brown coral, narwhal ivory, caribou antler and opal
- $4\frac{1}{2}$ " x 6"

## Tankard

The form of this piece was pivotal as it dictated the design of the remaining works and thereby formulated the style of the thesis.

The tankard started because I had never made a silversmith's hinge before.

A perfect cylinder had to be created to ensure equality of the sides and the soft taper resulted from over-planishing the bottom half.

For visual contrast and to show that the tankard was hand formed, I left the fine textured planishing marks on the body of the tankard. The remaining areas, namely the lid, handle and base rims were polished smooth.

The inlay was incorporated into the lid and thumbpiece. The inlays add variety through the colour and texture of the various materials as well as provide a visual accent.

Technically, this was perhaps one of my most demanding pieces. The square form had to be round enough to comfortably drink from. The hinge had to allow the lid to open sufficiently and it had to line up the thumbpiece with the handle perfectly, especially when open.

This piece won the First Prize in the 'Statements in Sterling' show, 1980, sponsored by the Sterling Silversmiths Guild of America. Also, the former curator of the Wadsworth Atheneum wished to purchase it for its permanent collection.





FOOTED BOWL

- sterling silver, lignavita
- inlays of vermilion, sumac, caribou antler, walrus ivory, abalone shell, lignavita and rosewood
- 7" x 7" x 7"

Footed Bowl

The main purpose fulfilled was to raise a bowl square. This proved to be quite a challenge in order to maintain symmetry.

The planish marks were left to add the soft texture I prefer with raised hollowware. The highly polished ligmavita base maintains the affinity with the silver and its denseness provides the necessary stability.

Visually, the ring of inlays helps to break up the solidity of the base.

Threaded rod and removable nuts secure the bowl to the base.



COFFEE SERVICE

- sterling silver, rosewood
- inlays of walrus ivory, jade, malachite, lapis lazuli, agates, cocobola, caribou antler, ebony, silver ore and copper ore
- 12" x 12" x 9½"

### Coffee Service

Very similar to the tankard in design and finish, the contrasting planished and highly polished areas create a subtle luminous surface.

Pleasing to me is the resolution of the handle which flows up the side and across the lid. So often the lid is left as a separate expression but here I have tried to unify the forms.

The richness of the oiled rosewood in the handles and tray serves as a foil for the shimmering silver.

In this case, the inlays are given the minor accenting role of inserts in the handles of the coffee pot and the creamer. On the raised corner of the tray, however, the inlay becomes a dominant feature.





PLACE SETTING

- sterling silver, 14K gold
- lapis lazuli

### Place Setting

The place setting bridges the concept of the ladle with the squared shapes of the hollowware.

The spoon and fork are forged from silver stock whereas, the knife is fabricated from sterling sheet with a stainless steel blade. All have the same 14K yellow gold accents but the lamination has been limited to a single piece of lapis lazuli.

The undulation in the fork and spoon serves for visual variation as well as the practical purpose of lifting the handles from the table easily.



CANDELABRA

- brass, rosewood
- inlays of rosewood, ivory, vermillion, sumac, ebony, caribou antler and turquoise
- 20" x 17" x 20"

## Candelabra

I feel candles add elegance and intimacy to a dinner. But people are often frustrated by having to constantly peer around the tapers to speak to the person sitting opposite.

With this design, the candles are set high with only the narrowest part of the candelabra at eye level. The continuous sweep of the feet moving up the column and finishing at the candle holders both unifies and enhances the loftiness of the piece.

The square format is retained not only in the positioning of the units but also in the shape of the stock itself. The candle holders are likewise squared.

The rosewood undersides of the holders visually unite with the base and are drilled to accommodate the seating of two different-sized candles. The photograph illustrates the use of slender ones.

There is a brass medallion of inlay nestled within the base as a point of interest. This rosewood base is attached to the candelabra with threaded rod and nuts enabling its removal for complete repolishing if necessary.

The resultant simple design in no way reflects the complexity of the design development. I am very pleased with the final piece because it really does speak for itself.



CONCLUSION

The skills I learned at the Rochester Institute of Technology will help me to realize my goal of becoming Canada's foremost silversmith. I am grateful.